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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

EDITED BY

G. E. MOORE,

WITH THE CO-OPERATION OF PROFESSOR PRINGLE-PATTISON, PROFESSOR C. D. BROAD, AND F. C. BARTLETT, M.A.

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PSYCHOLOGY AND PHILOSOPHY

I.—SENSE-PERCEPTION : A REPLY TO MR. STOUT.¹

BY S. ALEXANDER.

I HAVE been agreeably disappointed. I expected to be annihilated and I find myself confirmed. I do not feel dogmatically confident that I am not wrong, but I feel quite sure that Mr. Stout is not right. He seems to me in his attitude to be wanting at times in that deliberate innocence, that strenuous naïveté which I think to be vital to the subject; as I shall presently illustrate. And accordingly he sometimes charges me with neglecting distinctions which I think depend upon using extraneous knowledge, knowledge, that is to say, which may be perfectly true, but is not borne upon the face of what is being examined. I have no fault to find with the unsparing character of his criticism. Rather I welcome it, for he raises in a quite definite form an issue which is for me at any rate very important to be clear about. And I think it best to imitate his example and first restate features of my own description which are suggested by his charges, and rebut if I can his more general charges. Certain details may be left over to the end.

I. I may put aside the comparatively minor allegation that instead of treating my theory (p. 388) as merely a possible alternative, I press it as the only possible one. This has been urged from other quarters as well, and so I suppose I must have contrived to convey the impression of dogmatism. That is not at all the spirit of the work. I make a hypothesis and try to show that it explains all the relevant facts. The force of the argument, if it has any, lies in its accumulation of convergent evidence. Incidentally I do indeed endeavour

¹ The greater part of this paper was read at the Manchester Joint Session, 16th July, 1922, in reply to Mr. Stout's paper, published in *MIND*, xxxi., pp. 385 ff.

to undermine other explanations, but rather as in the case of Mr. Stout himself (see later) by way of indicating the truths at the bottom of them which I think they misrepresent.

II. To the more important allegation that I ignore the difference between immediate experience and experience in general, except when it serves my purpose to make use of it, I plead not guilty. By experience I mean always experience in general and for me it is always immediate. For me *sensa*, percepts, images, and concepts and judgments are alike apparitions, and I think it unhappy to call *sensa* specially immediate. The only difference I recognise is between partial and complete apparitions, or between direct and indirect ones. Of course I recognise the usefulness and importance of the distinction between knowledge by acquaintance and by description. But they are not a distinction of kind. The dentist's knowledge that his patient has a toothache is not indeed experience of the patient's toothache, but it is an experience to the dentist, though it takes the highly developed form of a judgment, let me say a judicial apparition. Moreover what the patient feels as pain is for the dentist a diseased condition of the tooth, which he identifies in one of its features with what the patient feels, that is, the object of the patient's experience. Substitute the patient for the dentist; he could then say, 'my pain prevents me from thinking,' and this judicial apparition would refer to the pain itself. The difference between the two cases is merely that the dentist cannot get inside the patient's body and feel his pain.

Thus for me all experience is apparitions in Mr. Stout's sense, though there are some objects which I cannot know directly as you can. To this I add only that these so-called apparitions are selections from real things, so long as they are not distorted by the idiosyncrasy of the subject.

III. The allegation that I ignore the difference between experience and knowledge. *Nego majorem*. I don't admit the distinction. All experience is knowledge, and it claims to be true knowledge. If knowledge is identified with true knowledge, I admit that we introduce a new element, that of value, and I have maintained that truth is a product of art, and involves the subject as well as the object, though it is altogether guided by the reality.

I illustrate this point from page 391. "It does not follow," says Mr. Stout, "that what is immediately known must be immediately experienced. How can we immediately experience the fact that something existed before it was immediately experienced, and will exist after it has ceased to be so?" I

answer that unless we do experience its having existed in the past, we cannot know it to have existed in the past. That is why I so carefully insist that pastness is a direct experience, that when we remember we have before us an apparition which belongs to the past; in other words that the memory image is all that we have to account for our belief that it is a feature of a past thing. Other accounts seem to me to want naïveté, because they assume that the thing does exist in the past outside the evidence supplied in the memory itself, not merely through the memory. You have no right because you know that your friend was alive yesterday to ask how can your memory of him at this moment refer to his past; what you ought to ask is how you know him to have a past. And the answer is: read off the face value of the memory image. I dwell on this because I think it so vital. Is not the other view the old story of the assumed thing in itself?

I may seem to be unfair to Mr. Stout. Of course Mr. Stout knows this as well as I do. And because he knows it so well, he has to say that in an elementary sense-experience, besides that which is apprehended by sense there is the integral element in the experience of something, transcending the sense element, which is apprehended by thought. Whether the word thought which is also used for thinking in the special sense is well chosen is another matter. What I am concerned to do is to defend myself against the apparent injustice I do to this view in the passage quoted at the top of page 392, which is directed against him, so that I don't wonder he fastens upon it. But he misunderstands my strictures, which raise a different point. In metaphysics, I have said recently, use no notion for which you cannot point out its equivalent in experience. Mr. Stout agrees, and says the real thing referred to is experienced in thought, and the critical realists say it is experienced in acting towards it, though you only apprehend its essence. But there is a further principle of sound metaphysics: be sure that what you say you experience is there in the very form in which you describe it. Now when we see green we do not see mere green; there is something or other with which green is continuous. When this something or other is examined, it turns out to be data like green. But instead of saying thought reveals to us a sensum in a mass of sensuous setting, and that what we call the thing is somehow a synthesis of sensa, Mr. Stout declares that thought informs us of an object different from sensa. But how does he get the experience of something different in kind from sensa? The answer is

that he assumes it from his extraneous knowledge. And that is a failure to read experience at its face value. I am going to return to this, because what Mr. Stout says is present and is thought is really present and actually experienced at its face value. But first I proceed with my own defence.

This charge of Mr. Stout's that I ignore the difference of experience and knowledge has another aspect to it. As I have said, I do not ignore it; I deny it. Still, the experience which is knowledge is at a higher remove than that which is called experience by acquaintance. There is naïve knowledge and there is reflective knowledge. But since Mr. Stout thinks I ignore the distinction, he imputes to me or seems to impute to me that I identify irreflective and reflective experience. And he is continually seeking to impale me on dilemmas, constructed on this supposition. I take two examples. I say that the cognitive experience in sensation is that of a *sensum* apprehended as independent of the enjoying subject. Mr. Stout thinks I assume (p. 391) that in sense knowledge I know the independent existence of the *sensum* as a fact and (p. 399) that this *sensum* is a feature of the thing perceived. Now here is a nice mixture of different experiences which Mr. Stout attributes to me. The innocent man, ignorant of philosophical theories, apprehends an object, a *sensum* which is not himself. The same man when he has synthesised many *sensa* and *percepta* into a thing and has learned to distinguish a particular *sensum* from the thing, can speak of the *sensum* as a feature of a thing, and when he has acquired philosophy and uses an array of reflective concepts he can say that what he was originally aware of was a feature of a thing which has independent existence. But the first experience is not the last one. Now the duty of the philosopher is to put himself into the skin of the innocent original, and this is part of what I mean by strenuous naïveté. Still he has to use such tools of description as he finds to his hand; and he ought not to be thought to be confusing his own developed and technical knowledge with that out of which it develops. This sort of difficulty says Mr. Stout (p. 399) "does not seem to trouble Mr. Alexander". I think it ought not to trouble Mr. Stout.

Here is another example. I say, in speaking of the real appearances of a lighted surface as you recede from it, that they are selections from the complete reality. Let me waive the further question whether they are justly described as parts of it, for I mean nothing but that they are a selection. Mr. Stout asks how do I know that; where is the whole? Now I do not mean that when I select I am aware that I

select; *that* knowledge is the theory of the outside philosopher. To apprehend what is a part is not to apprehend it as a part. If it were seriously contended that I ought to mean this, I should answer that this would be to introduce into the experience described extraneous knowledge which is not borne upon the face of the object experienced.

IV. The passage from *sensa* to the external existence. Mr. Stout urges that this is impossible on my view. Or as I may put it there is no road from the *sensum* to the thing of which the *sensum* is a feature. Now I maintain that no road is needed because the *sensum* is already an external existence. What is needed is an account of how we advance from the *sensum* to the fully developed notion of a thing; and here it is plain according to Mr. Stout that I am as much at a loss as Mill or Mr. Russell. This belief of his ignores, as I think, a vital part of my view, the doctrine of intuition. I expect I am myself to blame for it, for it was only in writing the book that the theory developed itself fully in my mind and I may not have impressed its significance sufficiently on the reader. Anyhow for me the *sensum* is not a mere sense-quality. The *sensum* green is not mere greenness but a patch of green; that is, it is a bit of extension or rather of space-time which has the quality green. The green is in Mr. Whitehead's language an object which is situated in that event-patch. I come to think of the green thing, *e.g.*, the leaf, because that patch has other qualities as well, and so the thing is the synthesis of its *sensa* and percepts and images because they all belong to the same event-patch. I keep on saying, and I must go on saying it because it is ignored, that we do not co-ordinate a visual patch with a touch patch, as if according to Berkeley these were different patches. But we co-ordinate colour and touch within one and the same patch which is known to intuition. Thus for me the *sensum* already implies an intuition which is a lower experience than sensation; and secondly, whereas Mill requires the fiction of a permanent possibility, and Mr. Russell describes a thing as the class of its appearances, for me the patch of events is the real basis of all these varying experiences. Neither is a fiction required, nor is the thing a mere class. The thing is an event-patch with various qualities, which are known by sense and imagination. And it is of no avail to urge that even according to my own statement intuitions themselves are variable, as variable as sensible appearances. For I reply that they only deceive us because we can only have intuitions through our senses. If we could strip off the *sensa* and be intuitive, all the intuitive appearances would be real ones; that is, our intuition as such is infallible.

I know very well that this is all very complicated, and not lightly to be accepted. I know also that it raises the whole metaphysical question as to whether space and time are merely relations of things or are themselves the stuff of things; and that it leads on to that very question of the true interpretation of the doctrine of relativity on which Mr. Whitehead is to speak to-night. All I plead is that in asking how I can get to things from *sensa* one vital part of the doctrine should not be ignored. I ask to be taken as a whole, not in parts only. For though I may be ugly in parts, I may be beautiful as a whole.

V. This leads me on to do justice to Mr. Stout; how should I not wish to do him justice, having learnt so much from him? When he says that in sensation there is more than mere sense, he is right. But that more is not the thought of an independent object transcending sense. For as I have said this notion of something transcending sense is an invention of the mind, not borne upon the face of the experience but brought in because we know there are things and will have them. Indications there are of some feature which is not sense, but what derives from these indications the notion of an independent object? No, what is given in the *sensum* is the intuited object, the patch of space-time. This is given in the experience and borne upon the face of it. And I believe that all those categories which Mr. Stout says are to be postulated as implied in our sense experience, substance, causality, and the like, are descriptions of this very event-patch which is experientially contained in sense.

Only observe it is not from the fragmentary character of *sensa* that the notion of a thing or the other categories is obtained; they are involved in any one *sensum* because it is a sensory event-patch. And further, all the other experiences which are suggested by the *sensum*, as touch is suggested by sight, are homogeneous with the *sensum*, not heterogeneous with it, and there is nothing transcendent of *sensa*, because all *sensa* contain the patch of space-time to which they belong.

Another point needs to be added. These *sensa* or other apparitions of the thing are, if real appearances, elements of the thing itself. There is nothing behind them; they are realities. Hence when thought is said to reveal the real object which is independent of us, we should mean that in so far as we apprehend a *sensum*, or a percept or an image, we are *ipso facto* referring to something not ourselves. Thought, I must conclude, in Mr. Stout's doctrine, must stand either for the intuition which perceives the basal event-

patch, or it stands for that very act of reference whereby in a cognition the mind is aware of something not itself, whether that something is a mere sensum or a developed thing.

VI. I come now to the details of the different sorts of appearances. I do not doubt that there are errors in the elaboration of the doctrine; and if all that could be said of it was that it was ingenious, I should regard that as the gravest criticism. Let me say at the beginning what I have tried to do. Starting with the hypothesis that experience is of features of real things, I have proceeded descriptively, classifying appearances into three sorts and attempting to show what may be the origin of the different sorts; following in this respect humbly the example of Locke who catalogues ideas and assigns their origin. Hence I am not concerned to ask why the appearances should be what they are but only to record them and describe the conditions under which they originate. In the case of appearances which are not illusory I suppose a normal sense organ (a condition which is, of course, only ideal) and I try to show that in every case of real appearance the variation is due to selection by the mind or the body owing to its spatio-temporal relation to the real thing, or rather to the real feature which is the appearance, and not to any creative action on the part of the mind. In the case of mere appearances I suppose that there is distortion because the object itself is not presented pure but is interfered with by some other object. For clearness, and with an eye to some expressions of Mr. Stout, I add that for me the sensum and the stimulus are one, that is, the sensum is a feature of the thing we commonly call the stimulus (p. 400) and (p. 401) "what we see is identical with the visual sensum we have in seeing" (how should it be anything else?).

I take as an example the varying brightness of a light as we recede. The explanation is that only a part of the physical brightness affects the eye because of the distance; and I say that the distance selects for the mind and only produces a partial effect, which is less than the effect would be if the eye were nearer. I need not again refer to the mistake Mr. Stout makes in asking how the mind knows there is a greater brightness. The seeing mind does not know, but just sees the lesser brightness. When we come to the reduction of the size of the plate as we retire from it, there is difficulty, and any one who reads my passage on this subject (*S.T.D.*, vol. ii., pp. 194 ff.) will see that I was contending with a difficulty. For, as shown by the touch, it is still the whole plate which is seen, and not a part of it. I mean by speaking of selection, that a near plate of the

same real size held, say, in the other hand would extend beyond the visual appearance of the more distant plate. All this raises, of course, the fundamental questions of whether we can speak of a real geometrical size and shape.

Now I have admitted that in some respects my reading is the harder one. In the editing of the classics they say that is a reason for preference. And Mr. Stout asks why not accept the simple reading of the facts and say "that the size and shape of the sensum varies directly with the retinal excitation whatever factor may be concerned in producing this". Yes, of course they do. I say so over and over again. Unless the retina were appropriately excited the mind would have no instrument of apprehension. But if this means that the sensum is determined in its nature by the retinal excitement, that is the very question at issue. I am not here to attack Mr. Stout but to defend myself. Still, I cannot resist asking him how, if the size and shape of the sensum depend on the retinal excitement, can sensa be as he declares them to be on the side of the material object and not on the side of the mind? This is my permanent trouble in reading Mr. Stout, and I at least can find no solution. I hope his Gifford Lectures will clear it up.

I hope that what I have said sufficiently removes the contention that in real appearances we have distortion. There is no distortion in seeing every bit of a plate in a smaller size. When we come to mere appearances, there is distortion of the thing to which the mere appearance is thought to belong, though it is not distortion by us, but because under the conditions, *e.g.*, of illumination, there is something else as well. I am hopelessly puzzled to see what is the difference he tries to establish on page 407 between two explanations he attributes to me. Apart from that, what does Mr. Stout mean by saying that the stick is not really bent in the water, or that there is no bend in the complex of stick and water? Who could suppose so? What I say is that there is a bent sensum, which is a mere appearance of the stick, but a real appearance of the stick in water *under the illumination*, the light being a part of the whole situation.

The appearance of the images in a mirror Mr. Stout thinks fatal to my doctrine of sense-knowledge. He is quite right to take the theory strictly. The sensa do appear behind the mirror. They do not merely seem to be there but they appear there. He seems to me singularly to miss the point. It is my face which seems to be there, not the appearance of it. But what I am contending is that the appearance which makes the real face seem to be there is a

distortion of the real position of the face owing to the intervention of the mirror. In other words, I am explaining why the otherwise faithful appearance of the real face appears in the wrong position. The point is that in spite of this we are seeing the real face. This also is the point of the passage which he quotes later in the same page, where he omits the vital matter which precedes. I use the experiment of touching in front of the glass a pencil or razor which we only see in the glass, to prove that the touched place and the seen place are the same place, the seen place being a distorted appearance of the place. And it is only in reference to this that I say we are troubled when we see the touched object without the mirror as well as in it. For then we have the real appearance and the mere appearance at the same time. What is there here which makes nonsense of the whole doctrine of sense knowledge? The very point of the misleading sensum is that it misrepresents the position of the thing it belongs to. I am really trying to explain how through the mirror we can see the face which our eyes do not see directly. It is only the position which is distorted.

The difficulty or paradox disappears when we consider what is borne on the face of the experience. When I see my face in the mirror the whole experience is that of a face behind the mirror. That is the position of the appearance. It is only by a new experience that I know the face to be an appearance of the face which is also touched. And since both touch and sight of the face are felt to be in the same place, we discover that the visual appearance is displaced. Mr. Stout seems to think that on my view if the appearance really belongs to the face, the face must be at the place where the appearance is. But, so far as the visual appearance is concerned, I know nothing of the real place of my face as revealed to touch. That comes through a different experience. Once more Mr. Stout's criticism of me is founded on his own insufficient innocence.

I must give the same answer to Mr. Stout's strictures on the nature of illusory experiences. A piece of grey paper is seen by contrast green upon a red ground. On my view I see it green because the corresponding patch of the retina is affected greenly and the mind sees green in the grey paper, thus imputing itself to the piece of paper. But, says Mr. Stout, since the red really does belong to the ground and the green appears within the red, the grey patch should also be green. And hence he infers that the whole theory of sense is mistaken. Now there is no doubt that, for the initial experience, the green appears in the middle of the red. But

when we go behind that experience to other experiences which assure us that the red paper is red and the green paper is really grey, we discover that the green does not belong really to the grey but is an illusion. Then theory, going further, accounts for the appearance of the green and its primary claim to belong really to the patch of paper which turns out to be grey. Mr. Stout is, or appears to be, assuming that in the original experience we know the ground to be really red and the patch really grey; whereas the original experience is that both red and green claim really to belong to their places. The last claim turns out to be illusory. There is no illusion about seeing the green.

Mr. Stout goes further and denies that the mind can initiate green. It could only do so, he says, "if when, owing to contrast, we have a green sensum instead of a grey, there is initially a certain process in the brain and organ of vision, which sets going a light vibration or some equivalent train of occurrence terminating in something which is really green and not grey" (p. 411). I am almost grateful to Mr. Stout for giving me the opportunity of correcting this strange misapprehension. It comes out best in his metaphor of the bridges, in his last sentence. For, to continue his metaphor, there are two bridges from the object to the mind. One is the path of the light (if the sensum is visual) and the afferent process; the other is the efferent process in mind and body. Now it is this conation in virtue of which the object is revealed. It is extorted from the mind by the object. In so far as the mind responds thus to an external object, that object is there for the mind, is revealed to it. The first bridge may be broken or, rather, may be unused, but if some stimulus from within set the steps of the mind towards the other bridge the object is seen. And if the bridge is unaffected, the object revealed is a sensum. If the bridge is somehow modified, the object is an image. That is the whole meaning of the doctrine of revelation, and of the proposition identical with it, that there is only one mental process which is conation, or of the proposition that we do not do because we know but that we know because we do.

The less important difficulty Mr. Stout raises springs, I think, from the old source, the failure to distinguish between the face value of sensa and more developed experience: how he asks if my explanation of illusion were true could sense experience determine where the characters of the external world really exist? The fact is, we make mistakes perpetually, and the mistakes get sorted out in the growth of experience, which also determines how various sensa and other

objects hang together, and constitutes the distinction of appearances from the totality we call the thing.

I add, in fairness, this concluding remark. Mr. Stout's strictures leave me, I must fain think, in my main position unaffected. But there is to my own mind a very serious question, whether I have gone far enough in the view I summarised when speaking just now about the bridges. Should I not go further and join my American friend, Mr. Holt, in metaphysics, and the behaviourists in psychology, like Mr. Russell who in some respects has done so? Possibly Mr. Stout's doubts about the bridge lead up to this very question. But he has not raised this question, and I do not therefore feel that I need. It is for me the most pressing of all the questions on the metaphysical side of sense-perception.

II.—SPINOZA AND CARTESIANISM (I.).

BY L. ROTH.

I.

THE following study is offered as a contribution to one of the most vexed of the problems which present themselves to the student of modern thought, that of the relation between the philosophies of Spinoza and Descartes. It is the considered pronouncement of the classical monograph on the subject that Spinoza 'was never a Cartesian at all';¹ yet the well-known remark of Leibniz that Spinoza 'only cultivated certain seeds of Descartes' philosophy' is repeated as axiomatic and indisputable.² In the face of such contradictory opinions it is natural to ask what has Spinoza himself to say.

The answer to this question is to be sought for not so much in Spinoza's specific statements, though we know that he spoke slightly both of Descartes' method and of his results,³ and was subjected to much annoyance, if not persecution, at the hands of the real Cartesians⁴; but in a reconsideration of the Cartesian doctrine itself as it was actually understood by Spinoza. Modern historians, in the attempt to comprehend 'Cartesianism' as a whole, have been prone to interpret the system of Descartes in the light of its supposed development in Spinoza, and have consequently found it easy (with the help of some additional accommodation) to discover Spinoza in Descartes. Our thesis is that, if the philosophy of Descartes be re-examined in the light of its own logical premises, it can be shown to have resulted, even according to Descartes' own admissions, in a pluralistic scepticism against which the

¹ Pollock, *Spinoza* (1912), p. 86.

² *E.g.*, 'In the Spinozistic philosophy there are few differences from Descartes which cannot be traced to the necessary development of Cartesian principles' (Caird in *Encyclopædia Britannica* s.v. Cartesianism).

³ 'Credisne, mi Amice, omnia quæ Cartesius dixit, vera esse?' (Spinoza to Tschirnhaus ap. Freudenthal, *Lebensgeschichte*, p. 208). Cf., e.g., *Eps.*, ii., xliii., lxxxi.

⁴ *Ep.*, lxviii.

whole of Spinoza's work is one continued and conscious protest.

Now the logic of Descartes is studied as a rule¹ from the *Regule ad directionem Humani Ingenii* and it has been a matter for some discussion as to how far the opinions of this early work persist in, or exercised influence over, the mature thought of the *Meditations*.² It happens, however, that the *Regule*, and with it the *Recherche de la Verité*, was not published in any form till after Spinoza's death, and must therefore from the point of view of the present enquiry be completely disregarded. If we wish to form a conception of the Cartesian logic as it presented itself to Spinoza, we must turn to the Discourse on Method, the Meditations, with the Objections and Replies, the Principles of Philosophy, the Passions of the Soul, and the Letters, all of which we know, to have been possessed, and used, by Spinoza.³ From a study of these works, a certain view of the Cartesian logic results. Whether it be allowed to be the only possible view or no, the second part of this study will attempt to demonstrate that this was the logic which was understood by Spinoza to be the Cartesian, and which, as Cartesian, was specifically combated by him throughout his philosophical career.

§ I. THE NEW METHOD.

The "Discourse on Method" commences with an account of Descartes' search for truth. From the fact that although 'good sense' is common to all, yet opinions on every important question are different, he concluded that the existence of these differences, apparent particularly between and within the various systems of philosophy, must be due to faults in method. Even in the sphere which commanded most agreement and where demonstration had been achieved, that of

¹ E.g., by Norman Kemp Smith in his *Studies in the Cartesian Philosophy*; cf. Höfding, *History of Modern Philosophy*, p. 510, n. 43 (E.T.).

² Cf. the articles of Berthet and Natorp in the Descartes number of the *Revue de Métaphysique et de Morale* (1896).

³ Freudenthal, *Lebensgeschichte*, p. 161 (the library list) nos. 10, 20, 21, 24, 25. For direct quotations, cf. e.g., Short Treatise, I., Cap. 7 end (from Replies to Objections); *Princ. Phil. Cart.*, I., Proleg. III. (from Principles, Meditations, and Replies to Objections); *Ethics*, V., pref. (from Passions of the Soul); *Princ. Phil. Cart.*, II., 6 sch. end (from the Letters).

References to the Discourse, the Meditations, and the Replies, have been given by the page and line of Adam and Tannery's edition: to the Letters, by the pages of the Latin edition (Amsterdam, 1668), which like the Dutch version possessed by Spinoza comprises Clerselier's first and second volumes only. The English is as a rule that of Haldane and Ross (Cambridge, 1911-1912).

mathematics, the methods commonly employed were too confused and fatiguing to be taken as a model. It was necessary, therefore, first to disengage the essential procedure of the purest types of mathematics, and then to take over the result for application to all the sciences alike. The characteristics of the logic so achieved might be expected to be the same as those of Geometry and Algebra—simplicity of premiss; universality of application; and inevitableness of conclusion.

This, the thought of the first two parts of the *Discourse*, is repeated generally throughout Descartes' works. He was impressed by two outstanding facts, the certainty and comprehensiveness of mathematical knowledge and the uncertainty and sterility of non-mathematical knowledge. Now this recognition of the peculiar character of mathematical knowledge is not original to Descartes. It is common to most of the great figures of the Renaissance, who, in their struggle against what they considered to be the arid logic of the Schoolmen, turned their eyes towards Mathematics as the one science through which the mind of man "could find new light in the darkness of the corporeal world; enlarge its powers so as to embrace the whole universe; and win for itself a triumphant peace".¹ And not only the admiration for mathematics as a liberating science but also the conception of the employment of its method in the other sciences, is older than Descartes. He himself remarks that "it is not novel, since there is nothing more ancient than the truth";² and in an interesting letter to Mersenne declares that it was this, and this only, of which he approved in the work of Galileo.³ But whether or no Descartes originated the high esteem in which the mathematical method was held, it was without doubt the conception which influenced him most profoundly in the development of his philosophy.

¹ See generally Cassirer, *Erkenntnisproblem* (Berlin, 1906), vol. i. The quotation is the substance of an eloquent passage of Ramus (*ibid.*, p. 132).

² *Med. Ep.* (p. 3; ll. 24-25).

³ . . . Et primo de Galileo dicam, me nunquam vidisse illum nec quicquam cum illo commercii habuisse ac proinde non potuisse me quicquam ab illo mutuari; et sane in eius libris nihil video quod ipsi invidiam aut fere nihil quod pro me vellem agnoscere. . . .

. . . Generatim quidem mihi videtur ille melius philosophari quam Philosophorum vulgus, quatenus ab erroribus scholæ quantum potest recedit, et materias Physicas rationibus mathematicis examinare conatur. Estenque sane illi omnino astipulor et puto nullam aliam investigandi veri rationem esse. . . . (*Ep.*, II., xci., pp. 281 and 276.)

The primary fault of the Aristotelian logic, then (to return to Descartes' criticism), at least as it had been developed in the schools, was that, at its best, it was a dialectic useful for expository purposes only, and, at its worst, a lip repetition of dubious and useless formulæ. It was in fact an instrument rather for classification than for fresh discovery, and that classification within traditional boundaries only. But the aim of any logic should be precisely to point the way to fresh discovery; and the unsatisfactoriness of Aristotelian principles could not be more clearly demonstrated than by the fact that they had produced no new truths.¹ The justification of the new method proposed in the *Discourse*, therefore, was the appended collection of special scientific treatises; the justification of the *Principia*, its scientific presentation of the phenomena of Nature as a whole. The new logic is the instrument for the construction of a universal science, "the roots of which are metaphysics; the trunk physics; the branches all the other sciences". Just as in Geometry even the propositions of Archimedes are not obscure if we give patient attention to the preceding demonstrations, so in the whole of nature there is no question too remote for the grasp, or too deep for the understanding, of the ordinary man.²

¹ Logicae operam dare debet, non illi quæ in scholis docetur; ea enim si proprie loquamur, non nisi Dialectica quedam est quæ modum docet ea quæ jam scimus aliis exponendi vel etiam de iis quæ nescimus sine iudicio loquendi (Author's letter prefixed to *Principia*). Profiteor ne unius quidem questionis solutionem ope principiorum Peripateticæ Philosophiæ peculiarium datam unquam fuisse, quam non possim demonstrare esse illegitimam et falsam (*Ep. ad P. Dinet*, p. 579, l. 30 f.). Philosophia, quæ a me aliisque omnibus eius studiosis quæri solet, nihil aliud est quam cognitio earum veritatum quæ naturali lumine percipi possunt, et humanis usibus prodesse. . . . Philosophia autem illa vulgaris, quæ in scholis et Academiis docetur, est tantum congeries quædam opinionum, maxima ex parte dubiarum, ut ex continuis disputationibus quibus exagitari solent, apparet; atque inutilium ut longa experientia jam docuit; nemo enim unquam ex materia prima, formis substantialibus, qualitatibus occultis et talibus aliquid in usum suum convertit. . . . *Ep. ad Voetium* (Opera, ed. 1677, p. 13).

² "Ut autem scias quid edere constituerim, quattuor erunt tractatus omnes gallici et quorum titulus generalis erit: Idea scientiæ universalis, quæ possit natura nostra ad summum perfectionis suæ gradum elevari; præterea Dioptrica Meteora et Geometrica; ubi selectissima argumenta in quibus exhibetur specimen scientiæ istius universalis quam proponit auctor, ita explicantur, ut etiam ab iis qui literis operam non navarunt, intelligi possint" (*Ep.*, II., cxi., p. 378). . . . In his [appendices to the *Discourse*] non verebor dicere me a nulla materia tractandâ (earum saltem quæ ratiocinationis vi cognosci possunt) abstinuisse, quod illam ignorare me crediderim: ita ut mihi videar satis præstitisse unde quis iudicet me ea uti Methodo qua possem quamlibet aliam materiam æque bene explicare si quidem suppetere experimenta necessaria et tempus ad

This comparison of the difficulties of physical investigations with those of Geometry strikes the note which dominates Cartesian logic, and it is the peculiar value of the narrative of the *Discourse* that it shows that the mathematical method detailed in the *Regulae* is as a historical fact the real starting point for the thought of the *Meditations*. The rules of the second *Discourse* emphasise the twofold necessity of analysing a problem into its constituent smaller problems and then arranging these constituents in some definite order; while the fourth and the fifth *Discourses* are devoted to the search for principles on which metaphysics and physics may be based, principles which were afterwards to be employed in the *Meditations* and *Principia*. The doctrines of 'simple ideas' and 'simple natures' are in fact only different applications to the spheres of logic and physics of what appeared to Descartes to be the starting point of mathematics. The long chains of 'reasonings'¹ wherewith mathematicians build out into the unknown must be imitated in the realms of physics. As Geometry starts with principles, so physics must start with principles; as geometry moves away from its principles, so the new physics will move away from its principles. Now the word 'principle' may be used in many senses. One may conceive of a principle as a whole out of which everything else may be as an actual fact deduced (or rather educed), much in the same way as out of certain puzzle boxes a long series of progressively smaller boxes may be successively taken. Or one may conceive of it as an abstract formula, to which everything may be expected to conform—an example is the principle of contradiction. Or finally one may conceive of it as an instrument to be actually used in the process of discovery, *e.g.*, the principle of the mechanical interpretation of nature which has proved so fruitful in physical investigations. It was in this last sense that Descartes specifically understood the word, and for the reason that it was only as an instrument of discovery that he put any value upon 'principles' at all; and from the point of view of fresh discovery it was no use postulating as a principle what one aimed at discovering, or putting one's faith in an abstract formula which would be useful only (if at all) in determining the abstract characteristics of the discovery when made.² As opposed to the traditional

res expendendas (*Ep.*, I., ex., p. 350). The comparison of metaphysical to geometrical propositions is in *Med. Ep.*, p. 4, l. 15 f.

¹ 'Raisonnements,' *Discourse*, II., p. 19, ll. 6-17.

² *Discourse*, II. (end), and Author's letter prefixed to *Principia* ("aliarum rerum cognitio ab iis [Principiis] ita dependet ut cognosci quidem illa

logic, therefore, which confined itself to the enunciation of universal 'truths' and discovered nothing new, the new logic was to use the touchstone of the principles in order to move from one particular which was known to another particular which was unknown. The 'deduction,' to use Descartes' word, though it is not deduction in the modern sense, was to be unilateral, proceeding from one point, previously determined, to the next, and so on and on until some hitherto unknown result had been achieved. The whole emphasis is on the novelty of the various links as they are being forged. True, the principles on which we work must be so fundamental as not to depend for their certainty on any deduction made from them; but the aim of the method is to show how the deductions, each one of which is to be manifest by itself, may be drawn one after another from the principles. The first satisfaction gained from the method, we are told in the author's letter prefixed to the *Principia* in which a general account is given of the aim and method of the new logic, is the actual discovery of new truths; and the last, the acquiring of the general habit of discovery, so that "passing little by little from one to the other, we may acquire in time a perfect knowledge of the whole of philosophy".¹

It is obvious that in this account of the unilateral as the

possint non cognitis istis, sed istæ non vicissim absque illis"). The various types of principles are distinguished in a letter to Clerselier: aliud esse querere notionem aliquam communem quæ tam clara sit et generalis ut possit principii loco assumi ad probandam entium omnium quæ postea cognoscuntur existentiam; aliud vero ens aliquod querere cuius existentia sit nobis notior ullorum aliorum entium existentia ita ut principii loco apud nos esse possit ad ea cognoscenda. Priore sensu dici potest hoc esse principium, impossibile est idem simul esse et non esse, atque universim posse adhiberi non proprie ad rei cuiuspiam existentiam investigandam sed solum ad rei cognite veritatem huiusmodi ratiocinatione confirmandam; "impossibile est ut illud quod est non sit. Atqui cognosco tale quid esse; ergo impossibile est ut id non sit". Quod certe nos parum iuvat, nihiloque doctiores efficit. Altero sensu, primum principium est, "quod anima nostra existit," quia nihil est cuius existentia sit nobis notior. Addo etiam, non esse conditionem in primo principio requisitam ut ceteræ propositiones possint ad illud reduci, et ex illo probari; satis est ut possit permultis reperiendis inservire nec ullum aliud sit a quo pendeat aut quod ipso prius inveniri potest. Fieri enim potest ut nullum sit in mundo principium ad quod unum omnia reduci possint; et sane modus quo ceteræ propositiones reducantur ad hanc, "impossibile est idem simul esse et non esse," supervacaneus est et nullius usus; cum e contra utilissimum sit Dei primum et deinde omnium creaturarum existentiam ex proprie sue existentie consideratione stabilire. *Epp.*, I., cxviii., p. 379.

¹ Author's letter (end). Cf. *Principia*, iv., 199.

ideal type of reasoning three main difficulties disengage themselves. The first relates to the selection of any one point as a starting point; the second to the movement from any one point to another; the third to the general character of the whole process as it eventuates in the discoveries of science. Since in fact the 'chain of reasoning' is made up of distinct and discrete elements, it is necessary to enquire how the discrete elements may be said to become a 'chain' at all. The three problems, those of the criterion, the movement, and the ground or guarantee, call for separate metaphysical elucidation.

§ 2. THE FIRST PROBLEM OF THE METHOD: THE CRITERION.

(a) *Its Nature.*

To resolve the first problem, that of the criterion of the individual truth, Descartes adopts frankly a theory of intuition. It is to an intuition that we owe our first premiss, an intuition behind which we cannot go. Of the nature of the intuition little is told us.¹ It is the power to recognise an idea as clear and distinct, but clearness and distinctness are irreducible qualities definable only in terms of themselves.² It is evidently to be identified with the 'good sense' with which the *Discourse* opens, or the appeal to 'natural reason in its purity' with which it closes. It is the 'light given by God' to man wherewith to 'distinguish truth and error'; the 'natural light' which assures us that "there must be at least as much reality in the cause as in the effect"; the 'natural knowledge' which tells us that "the mind is distinct from the body".³ A discussion on this last point with a doctor of the Sorbonne elicited from Descartes a clearer statement of

¹ The word intuition itself is almost confined to the *Regulæ* (e.g., Rule XI.) but cf. e.g., *Resp.*, II., p. 140 ("rem per se notam simplici mentis intuitu") and *Ep.*, I., ciii. ("Clarissima, et, si liceat ita loqui, intuitiva, cognitio"). The possibility and nature of intuitional knowledge ("connaissance intuitive") is discussed in a letter to Mersenne in the third volume of the *Letters* (Augot: Paris, 1667, p. 638 f.) where its definition as "une illustration de l'esprit, par laquelle il voit en la lumière de Dieu les choses qu'il lui plaît lui découvrir, par une impression directe de la clarté divine sur notre entendement, qui en cela n'est point considéré comme Agent, mais seulement comme recevant les rayons de la Divinité" points clearly to its origin in Augustinian Neo-Platonism.

² *Princ.*, I., 45.

³ 'Bon sens' (*Discours*, p. 1, 17); 'raison naturelle toute pure' (*Disc.*, p. 77, 28); 'quelque lumière' (*Disc.*, p. 27, 24); 'lumen naturale' (*Med.*, p. 40, 21); 'naturalis cognitio' (*Obj.*, p. 153, 11). The Cartesian doctrine of mind is considered below, p. 21, n. 4.

one side of the criterion of clarity and distinctness by which the intuition recognises truths. After laying down the general principle that "there must be in things everything contained in the idea of those things," that is to say that the world of ideas is complete in itself and hence autonomous and not subject to the interference of objects; he says that the only way to know whether an idea is complete in itself is to examine its origin and see whether inadvertently a transference has taken place or no, by an 'abstraction of the intellect,' not from another object, but from another idea. He then goes on: "the idea of extended and figured substance is complete because I can conceive of it alone and by itself and deny of it all other things of which I have ideas. Now it seems to me to be perfectly clear that the idea which I have of thinking substance is complete in this manner, and that there is no idea in my mind which precedes it or which is so joined with it that I cannot conceive them rightly by denying one of the other." From this clear statement,¹ the significance of which only becomes apparent later, though it is after all no more than a reaffirmation of the first premise, we see that the very essence of the true idea is its discreteness. If an idea is not completely self-contained, *i.e.*, if it cannot be understood by itself without reference to any other, it is not, in the Cartesian sense, distinct, and therefore is not, by the Cartesian standard, true.

(β) *Its Source.*

The question is legitimate how we arrive at the criterion of clarity and distinctness at all. Descartes has his answer ready. In the process of the universal doubt man is forced to acknowledge the fact of his own existence as indubitable. An examination of this primary fact shows that it is characterised by clarity and distinctness. Clarity and distinctness therefore may be adopted as the test of the truth of any other

¹ Verum existimo etiam rebus inesse necessario illud omne quod in illarum ideis reperitur; atque ita ut sciam an idea mea facta sit incompleta sive inadequata per aliquam mentis mee abstractionem, examino tantum an illam desumpserim non quidem ex subjecto aliquo magis completo, sed ex aliqua alia idea quam in me habeam magis completa ac perfecta; atque annon illam desumpserim ex hac per abstractionem intellectus, hoc est abducendo cogitationem meam a parte aliqua eius quod in ista idea comprehenditur, ut animum melius applicarem et me attentiores preberem ad aliam partem. . . . Idea substantiæ extensæ et figuratæ completa est quia possum illam per se solam concipere deque illa negare cetera omnia quorum ideas habeo. Videtur autem mihi valde clarum ideam quam habeo de substantia cogitante completam esse hoc pacto, nullamque esse in mente mea ideam quæ illam præcedat aut quæ sit cum illa ita conjuncta ut nequeam illas recte concipere negando unam de alia; talis enim in me nulla esse potest quin illius conscius sim. (*Ep.*, I, cv., pp. 341-342.)

idea. The criterion of clarity and distinctness rests on the examination of the characteristics of the knowledge of the self and is hence posterior to it. Not that the validity of all clear and distinct ideas depends on the idea of the self in the sense that they all may be deduced from it in one way or another; but the choice of the criterion of clarity and distinctness depends upon the fact that clarity and distinctness are the characteristic marks of the type of all true ideas, the idea of the self.¹

The argument aims at finding a metaphysical basis for the criterion of truth, but it would seem to rest on a logical inversion. The method of investigation with which Descartes sets out is the mathematical method, that is, the method characterised by its employment of the criterion of clarity and distinctness. With this method he searches for a starting point for thought and proceeds to doubt everything about which he can doubt, that is to say, everything which is not perfectly clear and distinct. Having at last achieved an idea about which he cannot doubt, he examines its nature and notes that it is clear and distinct, and then adopts the clarity and distinctness of an idea as the universal criterion of logical validity. But seeing that in his very search for a starting point it was precisely clarity and distinctness for which he looked, it is not remarkable that he should discover these characteristics in the starting point which he finally found. From the point of view therefore of the criterion of clarity and distinctness the 'thinking self' is only one among many other self-evident truths or intuitions and cannot be considered to be their foundation.²

Descartes himself, when pressed on the subject of the argument which proved the existence of the self, replied in substance that there was no argument about it at all but that the recognition of the existence of the self was an immediate intuition.³ This position in itself is of course sound, but it has important consequences for the further development of the logic. If we allow the unquestionable validity of one intuition it is difficult to disallow (and Descartes himself never disallowed) the validity of others. But if so, it is not the thinking self which is the premiss and foundation of our knowledge but the 'lumen naturale' with its many and

¹ *Disc.*, IV., p. 33, 16 foll.; *Med.*, III., p. 35, 7 f.; *Med.*, IV., p. 58, 25 f.

² For the self as only one of many simple ideas, see e.g., *Resp.*, II., p. 145, 22 f.

³ *Ibid.*, p. 140, 18 f.

various intuitions.¹ And in fact the criterion of truth which, far from being derived from, is presupposed in the argument for the existence of the thinking self, springs out of the very nature of the 'lumen naturale'.²

§ 3. THE SECOND PROBLEM OF THE METHOD: THE MOVEMENT.

Having firmly grasped the character and the fundamental importance of the clear and distinct idea and the validity of the criterion of clarity and distinctness, we must turn to consider the nature of the movement from one clear and distinct idea to another. Now the impetus for the movement cannot come from the external object, or objects; because, as we have seen, the world of ideas is autonomous, reflecting, or corresponding with, not interacting with, the world of objects.³ Nor can the source of movement lie in the mind itself, because the mind is the same as, and cannot be distinguished from, ideas; and since the ideas to be true must be discrete, there cannot be a unitary, much less an active, mind at all.⁴ The

¹ See *Princ.*, I, 10 and 49. For the all importance of such simple ideas in the very construction of the argument for the existence of the self, cf. *Princ.*, I, 7 (on 'contradiction'); and for other demonstrations "which absolutely convince us of their truth," *Princ.*, I, 13.

² "The clarity of understanding which nature has implanted in us" (*Post.*, III, of *Append. to Obj.*, II.). "Quod intelligam quid sit res, quid sit veritas, quid sit cogitatio, hæc non aliunde habere videor quam ab ipsamet mea natura. . . ." (*Med.*, III., p. 38, 1 f.) "Quod ad Doctorem illum attinet qui dicit posse nos dubitare utrum cogitemus, non minus quam de quavis alia re, in lumen naturale tam graviter impingit ut mihi persuadeam neminem in eius sententia futurum qui ad verba eius attendet." (*Ep.*, II., liv., p. 208.)

³ Above p. 19, n.

⁴ Nullam aliam differentiam statuo inter animam et eius ideas quam inter frustum cere et diversas figuras quarum frustum illud capax est; et quemadmodum diversas figuras recipere non est in cera actio proprie sed passio: ita mihi videtur passio esse etiam in anima quod hanc vel illam ideam recipiat, et præter volitiones nullas esse ipsius actiones existimo. (*Ep.*, I., cxv., p. 369.)

Descartes is not too consistent on this point. In the letter to Voetius, (below, p. 24, n.), he uses the Socratic argument to prove the existence of a native knowledge in the mind, and in his notes against the first article of Regius' program claims as his original contribution the definition of the mind as the 'faculty of thinking' and the 'inward source' of thought. The fuller development of the logic, however, shows that this strand is not the central one in Descartes, and that the discretion which is noted by N. K. Smith as being the characteristic of the *Regulæ* runs through the whole of Descartes' work. If we once admit that the intellects and memory of man depend on the conservation of God (below, e.g. p. 27, n. 4), then there can be no such thing as a judgment at all and the whole doctrine of intuitive axioms falls to the ground.

central problem of the Cartesian logic, therefore, is, how can we, assuming a theory which gives us only discrete thoughts, arrive at the whole of truth? If there are no real connexions between ideas, in fact, how can we speak of truth at all? Descartes was fully aware of the importance of this question and attempted to meet it by shifting the centre of his system away from the doubting self and clear and distinct perceptions altogether, and making it the idea of God.

The Idea of God as (a) Primary Starting Point.

Now it is clear that the idea of God cannot be substituted for the thinking self as primary starting point. The Cartesian arguments for the existence of God are variously stated, even in succeeding paragraphs, but correspond to two broad types. The first is from the idea in our minds of perfection to the existence outside our minds of a perfect being as a cause of the idea within us. The second is from the idea of God as existing to the fact of God as existing.¹ Both exhibit the same fundamental characteristic of starting out from the self. It is the self which is conscious of imperfection and the self which possesses the idea of perfection. It is therefore the self and the self alone which we can make our starting-point in thinking.²

(β) Secondary Starting Point.

If the Idea of God cannot be the primary, can it be the essential secondary, premiss in the system of knowledge? An examination of Descartes' thought shows that the nerve of his argument is that the only possible step forward from the recognition of the existence of the self is the recognition of the existence of God, and that therefore the mediation³

It is worthy of note that the 'continuous and uninterrupted act of thought' which 'runs over the whole of a number of simple truths' and 'infers one thing from another,' of the *Regulæ*, does not reappear in the later works. Instead we have the direct movement from the mind to God and from God to things and propositions, to be described later (§§ 3-4). The difference is well marked in a comparison of, e.g., *Reg.*, XI., with the summary of the method in *Princ.*, I., 75.

¹ *Due tantum sunt viæ per quas possit probari Deum esse, una nempe per effectus et altera per ipsam eius essentiam sive naturam* (*Resp.*, I., p. 120, 9 f.). The two arguments are detailed most clearly in *Ep.*, I., 99 (= Notes against a Program), p. 328, and in the geometrical appendix to the second set of Replies.

² *Præterea non tantum quesivi quæ sit causa mei, quatenus sum res cogitans, sed maxime etiam et præcipue quatenus inter ceteras cogitationes ideam entis summe perfecti in me esse animadverto. Ex hoc enim uno tota vis demonstrationis mee dependet*, *Resp.*, I., p. 107, 20 f.

³ *Dixi vero Scepticos de veritatibus geometricis dubitaturos non fuisse, si Deum ut par est agnovissent, quia, cum istæ veritates Geometricæ sint admodum perspicuæ, non habuissent ullam occasionem de iis dubitandi, si scivissent ea omnia quæ perspicue intelliguntur esse vera; hoc autem*

of the idea of God is essential if we would proceed beyond the self to an investigation of the external world.¹ To sustain such a position it would be necessary to prove that the recognition of the doubting self is the sole logical prius in knowledge, and that the essential and only possible complement to the recognition of the doubting self is the recognition of the existence of God. If this could be shown it would follow that it is only through the idea of God that we can approach the sciences and that therefore a denial of the existence of God involves the invalidity of the sciences.

Both of these premises however are, on Cartesian principles, invalid. That, starting from the self, we can only proceed to the existence of God and nothing else, is, it is true, constantly suggested by Descartes, who implies, though he does not prove, by always moving directly from the self to God, that there can conceivably be no other movement;² but he himself notes that in the movement of the argument many prior conceptions are involved, that of cause, for example,³ and that therefore, the necessity of the movement does not lie within the sole bounds of the original starting-point, the idea of the existing self. But the first premiss is in even worse case. The existence of the doubting self is far from being, as we have noted before, the sole prius in knowledge. It may be true that "we cannot doubt our existence without existing while we doubt; and that this is the first knowledge that we obtain when we philosophise in the ordinary way". Yet we must not forget that philosophy is reflective and that therefore our datum is not the doubting self but the knowledge of the self as doubting. That such knowledge exists depends on the reliability of the primitive intuition of thought, there being a "contradiction, in conceiving that what thinks does not, at the same time as it thinks, exist".⁴ But seeing that from this same primitive intuition there are derived many other axioms which have nothing to do with self or God, it is clear that the sciences may start from these axioms and ignore (from the point of

in sufficienti Dei cognitione continetur atque hoc ipsum est *medium* quod in numerato non habebant. *Ep.* II., xvi., p. 91.

¹ The objective existence of which indeed may only be assumed on the hypothesis of the veracity of God (*Med.*, VI., and *Princ.*, II., 1)

² *Eg.*, *Princ.*, I., 75 . . . imprimis advertemus nos existere, quatenus sumus naturæ cogitantis; et simul etiam et esse *Deum*, et nos ab illo pendere et ex eius attributorum consideratione *ceterarum rerum* veritatem posse indagari. . . .

³ *Ibid.*, 18; *Med.*, p. 40, 21 f.; *Resp.*, I., p. 119, 16 f.; *Resp.*, II., p. 135, 11 f.

⁴ *Princ.*, I., 7.

view of logical principle) the existence both of the self and of God.¹

§ 4. THE THIRD PROBLEM OF THE METHOD: THE GROUND.

The idea of God therefore can be accepted neither as primary nor as secondary starting point in the process of thinking. It remains to consider whether in thought as a system it may be shown to hold an essential place. Such a place Descartes sought to find for it by his doctrine of the veracity of God.

The Veracity of God.

God, he said, being good, is no deceiver, and therefore would not have arranged the world in such a way that our clear ideas should deceive us. Being thus the guarantee of the certainty of our clear ideas, He is the true centre and foundation of the intellectual world.²

The circular character of this argument was pointed out to him by his correspondents,³ and lies of course in the fact that it is from clear ideas in one way or another that we demonstrate the existence of God. The objection of the Theologians and Gassendi therefore that an atheist can be certain that the three angles of a triangle are equal to two right angles,⁴ is more pertinent, on Cartesian premises, than Descartes is disposed to allow. The atheist can be quite sure 'that he is not deceived' in his geometrical reasonings, because he can refer directly to his own clear and distinct perception of the triangle, which cannot but be at least as free from illusion, even assuming the possibility of demoniac influences, as his clear and distinct idea of himself.

Descartes, when confronted with his seemingly illogical

¹ This possibility is brought out clearly in *Princ.*, I., 75, where the mind has, "præter notione Dei et mentis nostræ," ideas of eternal verities and of physical things. The truths of mathematics, therefore, should not have less validity than the idea of God, as Gassendi remarks (*Obj.* p. 328, 2 f.), and as Descartes himself really agrees: notandum est eas omnes res, quarum cognitio dicitur nobis esse a natura indita non ideo a nobis expresse cognosci; sed tantum tales esse, ut ipsas, absque ullo sensuum experimento, ex proprii ingenii viribus cognoscere possimus. Cuius generis sunt omnes *Geometricæ Veritates*, non tantum maxime obvie sed etiam reliquæ quantumvis abstrusæ videantur; atque inde Socrates apud Platonem, puerum quemdam de Geometricis elementis mentis interrogando, sicque efficiendo ut ille puer quasdam veritates ex mente propria erueret, quas prius in ea fuisse non notaverat, reminiscantiam suam probare conabatur. Et huius etiam generis est Dei cognitio (*Ep. ad Voetium*, pp. 75-76).

² *E.g.*, *Med.*, IV.; *Princ.*, I., 13; I., 30.

³ *E.g.*, Arnauld (*Obj.*, IV., p. 214, 7 f.) and the Theologians (*Obj.*, II., p. 124, 29f.).

⁴ *Ibid.*, p. 125, 6 f.; *ibid.*, V., p. 328, 7 f.; *ibid.*, VI., p. 414, 24 f.

argument by his critics affirmed that they had misunderstood him. It was not, he says, the original concrete elements in knowledge of which he had spoken, but the 'science' that was derived from them. Inference is unilateral, proceeding from point to point; the mind, by giving patient attention to these points as they are discovered, constructs from them long chains of reasoning, and what we call science is not the intermediate links but the end reached by the whole chain. Now, the validity of our final opinions, Descartes argues, depends on the accuracy with which we remember the chain of our reasonings; unless we can be perfectly sure of our memory, we cannot but suspect our results. We cannot in fact put any reliance on thought as continuous and therefore are forced to call in God as auxiliary. Unless therefore we know that God is not a deceiver, we are liable to suspect that our course of reasoning may have been deliberately perverted; that is to say, we have science no longer, but only opinion or persuasion.¹

This statement, of course, misses the point of the problem. The problem is not the validity of the end of the chain after it has been fashioned, but that of the fashioning itself of the various discrete elements into the chain. It is little comfort to be assured that our memory has not played us false if we have no reason to trust the original conclusion as we remember it. It is precisely for the reaching of the original conclusion that the necessary means are wanting, and these means are not provided for by the conception of the veracity

¹ *Med.*, V.; *Resp.*, II., p. 146, 14-26; *Resp.*, IV., p. 246, 1 f. (where he sums up his reply as "distinguendo scilicet id quod reipsa clare percipimus ab eo quod recordamur nos antea clare percipisse," etc.) and *Ep.*, I., lxxxi., p. 279-280:

"In secunda dicitis, axiomatum clare et distincte intellectorum veritatem per se esse manifestam; quod etiam concedo, quamdiu clare et distincte intelliguntur, quia mens nostra est talis nature, ut non possit clare intellectis non assentiri; sed quia saepe recordamur conclusionum ex talibus præmissis deductarum, etiamsi ad ipsas præmissas non attendamus, dico tunc, si Deum ignoremus, fingere nos posse illas esse incertas, quantumvis recordemur ex claris principiis esse deductas; quia nempe talis forte sumus nature, ut fallamur etiam in evidentissimis; ac proinde, ne tunc quidem, cum illas ex istis principiis deduximus, scientiam, sed tantum persuasionem de illis nos habuisse; quæ duo ita distinguo, ut persuasio sit cum superest aliqua ratio quæ nos possit ad dubitandum impellere; scientia vero sit persuasio a ratione tam forti, ut nulla unquam fortiori concuti possit; qualem nullam habent qui Deum ignorant. Qui autem semel clare intellexit rationes quæ persuadent Deum existere, illumque non esse fallacem, etiamsi non amplius ad illas attendat, modo tantum recorderetur huius conclusionis, Deus non est fallax; remanebit in eo non tantum persuasio sed vera scientia tum hujus, tum etiam aliarum omnium conclusionum, quarum se rationes clare aliquando percipisse recordabitur."

of God, whether according to the critics' interpretation (when it is a *petitio principii*) or according to Descartes' own (when it burks the problem altogether). The original crux of the logic therefore remains: how can we build up a whole of knowledge when we have only discrete intuitions with which to build?

God as Conserving Cause.

Although the doctrine of the veracity of God fails itself to provide a solution to the problem, it yet points out, particularly in its connexion with human memory, the lines of a possible solution. Its application has in fact been too restricted. The idea of God must be introduced, not only for the results, but also for the links and connexions, of an inference. Although, we may say, the discrete elements in knowledge themselves cannot by any manner of means be shown to be dependent on the idea of God, yet their association into a system of science cannot take place without the assistance of the idea of God. In this way what we have seen to be the fundamental problem of the logic would find its solution. God would be conceived of as the 'synthetic unity,' as it were, in, or through, which the elements of knowledge are fitted into the great syntheses of elements of knowledge which we know as the sciences. Without God the elements could not cohere, and there could not be such a thing as science. The very possibility of the existence of science therefore depends directly on the hypothesis of God. But God exists: therefore science is a possibility and logic has a justification.

This conception is, from the point of view of the Cartesian logic, of the supremest importance. Since the essence of the true idea is its discreteness and distinctness from any other, it follows that any connexions between it and any other idea must be external; and since the essence of science is the perceiving and unification of connexions, some unitary power achieving these connexions must exist. But this power does not reside in the human mind nor can it be allowed to come from the world of objects. We are driven therefore immediately to the transference of the conception of God as a 'conserving cause' in nature to the conception of God as a conserving cause in knowledge.

(a) *In Nature.*

"The first and most important truth," wrote Descartes to the Princess Elizabeth, "is that God is from whom all things depend; whose perfections are infinite; whose power immeasurable; whose decrees infallible."¹ God is the centre of

¹ *Ep.*, I, vii., p. 16.

the Cartesian metaphysic and His characteristic is freedom. The will of God is boundless, omnipotent and infinite, competent to effect all things.¹ Nothing exists which is not directly dependent upon His transcendent power, because the existence of anything independent of Him would imply a limitation of His omnipotence, *i.e.*, a contradiction in His nature.² From this it follows immediately that creation was not one final act. Since the characteristic quality of God is will, His characteristic function is creation; to assert that the work of creation is over and done would be to deny God's present activity, that is, deny His existence. The doctrine of one final creation, then, leads to an atheism which sees the passing away of God with the coming into being of the universe. But since God is, then creation is. Creation, therefore, must be interpreted as a constant process of conservation,³ the act of creation being continually repeated, and that not only in the physical universe, but also in the very volitions and thoughts of men.⁴ This view of creation as conservation involves, of course, an atomistic theory of time. The continuity of the universe depends absolutely on the continuity of the creativeness of God, not on the inherent connexion of the universe with a continuous time. And so Descartes observes:

¹ *Med.*, III., *passim*.

² . . . "nec dubium est si Deus cessaret a suo concursu quin statim omnia quæ creavit in nihilum essent abitura, quia antequam creata essent et ipsis concursum suum præberet nihil erant. . . . Nec Deus ostenderet potentiam suam esse immensam si res tales efficeret ut postea sine ipso esse possent; sed contra illam in hoc testaretur esse finitam, quod res semel create non amplius ab eo penderent." *Ep.*, II., xvi., p. 89.

"Quantum ad liberum arbitrium si ad nos tantum attendamus fateor non posse nos illud non putare independens; sed cum ad infinitam Dei potentiam animum advertimus, non possumus non credere omnia ab illo pendere et proinde liberum nostrum arbitrium imperio eius solutum non esse. Implicat enim contradictionem Deum creasse homines eiusmodi naturæ ut voluntatis eorum actiones ab eius voluntate non penderent; quia idem est ac si quis diceret, potentiam eius finitam esse simul ac infinitam; finitam cum aliquid sit quod ab illo non pendet; infinitam vero cum potuerit rem hanc independentem creare." (*Ep.*, I., ix., p. 25.)

Med., III., p. 48, l. 25 f.; p. 49, l. 11.

. . . rationes omnes quæ Dei existentiam probant, illumque primam esse et immutabilem causam omnium effectuum qui a libero hominum arbitrio non pendent, mihi videri probare illum etiam esse causam actionum omnium quæ a libero arbitrio pendent. Non enim demonstrari potest quod existat, nisi consideretur ut ens summe perfectum; non esset autem summe perfectum, siquid in mundo fieri posset quod ab illo omnino non procederet. Verum quidem est sola fide doceri nos quid sit gratia illa per quam Deus ad beatitudinem supernaturalem nos evehit; sed ex sola naturali Philosophia colligere licet non posse animum humanum vel minimam cogitationem subire quin velit Deus et ab æterno voluerit ut subiret. (*Ep.*, I., 8, pp. 22-23.)

"The mere duration of our life suffices to prove the existence of God". And adds: "We cannot doubt the truth of this demonstration so long as we observe the nature of time, or of the duration of things; for this is of such a kind that its parts do not depend one upon the other, and never co-exist; and from the fact that we now are, it does not follow that we shall be a moment afterwards, if some cause—the same that first produced us—does not continue so to produce us, that is, to conserve us. . . ."¹

(B) *In Knowledge.*

The doctrine of conservation, however, which we see to be the direct outcome of the doctrine of the transcendence of God, involves more than a discrete time. The presuppositions of the logic reappear. Everything rests on and in the will of God. There are no necessary connexions between things, because there is no necessity; nor can we speak of causation in a world in which God is the sole and immediate cause of everything. And just as there are no necessary or causal connexions between things, so the very word thing has lost its meaning. Qualities may conceivably be changed within the substance and substances themselves may conceivably interchange with one another.² To deny these possibilities is to deny the divine power; that we cannot understand them is no argument, because the understanding of man is incompetent to fathom the nature and purposes of God. In so far, therefore, as science depends on the observation and discovery of regular sequences, Descartes' insistence

¹ *Princ.*, I., 21; cf. *Med.*, III., loc. cit. and *Resp.*, V., p. 369, 14 f.—p. 370, 12. For the intimacy of the connexion between Descartes' doctrines of time and his argument for the existence of God see the Appendix to *Resp.*, II., where the discreteness of the parts of time is the axiomatic foundation of the *a posteriori* argument.

² All these consequences, famous later under the name of Occasionalism, are drawn explicitly in the explanation of the Eucharist in the Reply to *Obj.*, IV., cf. e.g., nihil est incomprehensibile aut difficile in eo quod Deus creator omnium possit unam substantiam in aliam mutare . . . (p. 255, 9-11) . . . ex eo quod dixerim modos absque alia substantia cui insint non posse intelligi, non debet inferri me negasse illos absque ipsa per divinam potentiam poni posse, quia plane affirmo ac credo Deum multa posse efficere que nos intelligere non possumus (p. 249, 9-13). This explanation is constantly referred to by Descartes in his letters as being one of the attractive features of his philosophy, cf. e.g., *Ep.*, I., cxiv., p. 367: Dicam vero insuper me neutiquam metuere ne quid adversus fidem in illis occurrat; nam e contra ausim dicere illam rationibus humanis nunquam ita suffultam fuisse, ac erit, si Principia mea admittantur; maxime vero transubstantiatio quam Calviniste arguunt, quasi ex vulgari Philosophia inexplicabilis esset, ex mea est facillime.

Such statements are by no means hypocritical, as has sometimes been supposed, because the explanation given does, as a fact, spring out of the very heart of the system.

on the omnipotence of God has led to the same intellectual chaos as we have noted before.

§ 5. THE COLLAPSE OF THE METHOD AND THE APPEAL TO REVELATION.

A similar chain of consequences may be traced out in Descartes' doctrine of man. When man draws near in order to investigate the facts of the universe his impotence is manifest from two sides. The world depends so intimately on God as to be beyond all ascertainable law and so beyond all investigation; but even if the world were of such a character as to be open to investigation, man is so imperfect that he could make little use of the opportunity. The feebleness of the powers of man in itself renders him incapable of approaching the works of God, to understand which indeed in their perfection and true limit would demand a divine revelation.¹

This insistence on revelation is of course not illogical. Assuming the completely transcendent character of the infinite, it is only through revelation that knowledge can reach down to the finite. Indeed the illogicality is rather the other way. If the finite is so imperfect, the point to wonder at is that even through revelation it attains and grasps knowledge at all.² And so Descartes writes in language that, in view of his original starting-point, we can hardly understand: "Thus if God reveals to us . . . certain things concerning himself which surpass the range of our natural power of intelligence, . . . we shall have no difficulty in believing them, although we may not clearly understand them."³ But he goes still further. We must not only believe revealed truths although we do not clearly understand them; we must believe them although we clearly understand to the contrary. "We ought to submit to divine authority," he writes, "rather than to our own judgment, even though the light of reason may seem to us to suggest with the utmost clearness and evidence something opposite."⁴ In this one sentence is comprised the fundamental contradiction of his metaphysic. The doctrine of God as transcendent will is fundamental in his philosophy, yet its implications annihilate the objects of the new logic. God is so perfect that it is only through revelation that we can have knowledge of the highest truths; but if truth is inaccessible, indeed opposed, to the natural reason, the need for

¹ *Princ.*, III., 1-2 and I., 24.

² "Est de natura infiniti ut a nobis qui sumus finiti non comprehendatur." (*Princ.*, I., 19.)

³ *Ibid.*, 25, cf. I., 28 (end).

⁴ *Ibid.*, 76.

a new logic, or any logic at all, falls to the ground. The form in which Descartes accepted the doctrine of Divine Omnipotence is incompatible with his aspirations for the progress of human thought. The problem is, which to choose; and Descartes with no uncertain voice chooses the former. In order to save a theory about God he is ready to sacrifice his discovery of man.

The incapacity of man to cope with the problems presented to him by nature is increased when we consider the relatively subordinate part played in him by intellect. Although the basis of the Cartesian system is professedly the thinking self, it is not from thought but from will that it sets out. Will is prior to thought. Assent or dissent is the essence of the judgment; in the very act of doubting there is involved a refusal to believe, and refusal is the work of the will.¹ Compared with the work of the will in thought, that of the understanding is insignificant. The understanding is limited to what it has before it; it cannot pass beyond the immediately present clear ideas. The will, however, is unlimited; it extends to and embraces everything in earth or heaven; and by thus asserting itself beyond the confines of the understanding drags us into the rash judgments of error.² Not only therefore is the will an essential element in thinking; it is the essential and the decisive element. It is not to be wondered at then that Descartes calls it, rather than the understanding, the principal perfection of man.³ Will is the primary fact about man as it is the primary fact about God. The metaphysical motive of Cartesianism therefore is purely voluntaristic. Understanding in both man and God is overshadowed by the unlimited will.

The contradictions of the logic therefore are not solved but emphasised in the metaphysic. The isolation of the various individual products of intuition is paralleled by the isolation of the parts of time and the simple natures in the created

¹ *Princ.*, I., vi., 34, 39, and *Ep.*, I. xcix. (= Notes against a program), pp. 328-329:—

“Quippe ego dixi, eas (= animæ proprietates) omnes referri ad duas præcipuas quarum una est perceptio intellectus, alia vero determinatio voluntatis, quas noster (= Regius) vocat intellectum et voluntatem; ac deinde illud quod vocavit intellectum dividit in perceptionem et iudicium; qua in re a me dissentit: ego enim cum viderem, præter perceptionem quæ præquiratur ut iudicemus, opus esse affirmatione vel negatione ad formam iudicii constituendam, notisque sepe esse liberum ut cohibeamus assensionem etiamsi rem percipiamus, ipsum actum iudicandi qui non nisi in assensu, hoc est in affirmatione vel negatione consistit, non retuli ad perceptionem intellectus sed ad determinationem voluntatis.”

² *Princ.*, I., 35; *Med.*, IV.; *Resp.*, V., p. 376, 20 f.

³ *Princ.*, I., 37.

universe, and these have their correlates in the isolated volitions and intellections of man. The system is essentially consistent and homogeneous. All finite things are isolated entities proceeding immediately from the direct action of the will of God. What is true of the created universe as a whole is true of the human mind, that is, if one has a right to speak of the 'human mind' at all. As Descartes wrote to a critic who had objected that the whole argument depended on what was meant by time: "It is perfectly clear that no succession in our thoughts, like that in the divine thoughts, can be admitted. We understand clearly that it may happen that I exist in this moment in which I think a certain thought and yet that I should not exist in the immediately following moment in which I should be able to think another thought if it chanced that I should still exist."¹ There are then no intrinsic connexions between things and no connexions between ideas, and no connexions in our thinking. For the pursuit of knowledge then there is one chance only left. If there is a real succession in the divine thoughts, then, we may say, knowledge is possible. The problem of the logic may be solved at the very last by the application to logic of the idea of God as a conserving cause, provided that, but provided only that, the conservation be conceived of as proceeding by some intelligible principle. If God may be shown to conserve in a way which we can understand, then, although all connexions, whether in our thinking or in the created universe, are external and are due to God alone, we may yet speak of a rational universe.

§ 6. THE FINAL RALLY AND THE ETERNAL VERITIES.

The most striking form under which the problem was attacked by Descartes was that of the validity of the eternal verities. The eternal verities are the axioms of thought; and the problem is, whence do they derive their axiomatic character?² There are three possibilities. They may be independent of God; or dependent on Him in such a way that He cannot will their contrary; or dependent on Him absolutely. Of these three possibilities the two former would have preserved for man the hope of achieving knowledge, though the

¹ . . . Manifeste cognoscitur successio in cogitationibus nostris qualis in cogitationibus divinis nulla potest admitti; atqui perspicue intelligimus fieri posse ut existam hoc momento, quo unum quid cogito, et tamen ut non existam momento proxime sequenti quo aliud quid potero cogitare si me existerre contingat. *Ep.*, II., iv, p. 15.

² Cf. *The Eighth Difficulty in the Sixth Set of Objections*, pp. 417, 26-418, 9.

first at least would have been difficult to harmonise with the claims of conventional theology. But Descartes was uncomprising. He chose the third; and with this choice the logic crumbles to the ground.

The point is so important as to merit a closer scrutiny.

"When we apprehend that it is impossible that anything can be formed of nothing," Descartes lays down in the first book of the *Principia*, "the proposition *ex nihilo nihil fit* is not to be considered as an existing thing, or the mode of a thing, but as a certain eternal truth which has its seat in our mind and is a common notion or axiom. Of the same nature are the following: 'It is impossible for the same thing to be and not to be at the same time'; 'what has been cannot be undone,' and 'he who thinks must exist while he thinks,' and so with very many other propositions the whole of which it would not be easy to enumerate. But we cannot fail to recognise them when the occasion presents itself for us to do so. . . ." ¹ The eternal verities therefore are those fundamental axioms of thought the truth of which is perceived intuitively by the mind and which though overlaid by subsequent prejudice may be considered to be the mind's native equipment in the work of thought. But these are not the only verities which are eternal. In the *Meditations* Descartes had spoken of "an infinitude of particulars respecting numbers, figures, movements, and other such things whose truth is so manifest and so well accords with my nature that when I begin to discover them it seems to me that I learn nothing new or recollect what I formerly knew". As an example he had given the case of the properties of a triangle, whose nature, form, or essence, he said, "is immutable and eternal and in no wise depends on my mind". From the point of view of the logic of the clear idea Descartes was right in making this affirmation, because the adoption of the criterion of clarity and distinctness involves the eternal validity of such truths as are clearly and distinctly perceived, and therefore of the truths of mathematics quite as much as of the idea of God. Gassendi, however, pointed out that the independent existence of these eternal, immutable, essences and truths was incompatible with the omnipotence of God, since it would posit eternity and immutability apart from the will of God. Descartes in his reply turned the flank of the criticism by affirming that both in regard to their essence and existence, these eternal truths, including the truths of mathematics, are themselves dependent on the unconditioned will of God; God is not bound by them, nor are His actions or thoughts

¹ *Princ.*, I., 49.

restricted by them. But in order to save their validity he goes on to say that they are in fact valid and eternal because God willed them so to be.¹ Generalising from this statement we come to the view of knowledge to which we were led as being the only possible answer to the questions of the logic. In the problem of the eternal verities it comes out clearly. God is the conserving cause both of the axioms of thought and of the courses and norms of human investigation. He stands, as it were, as the 'everlasting arms' in which all things and all thoughts rest. "To one who pays attention to God's immensity, it is clear that nothing at all can exist which does not depend on Him. This is true, not only of everything that subsists, but of all order, of every law, and of every reason of truth and goodness."² There is science, therefore, because, and only in so far as, there is a God.

Important passages from the letters confirm this presentation. Eternal verities, geometrical truths, essences of things, are all alike immediate productions of God as efficient and total cause. One cannot ask after the reason for any member of any one of these classes, any more than after that of any other. Just as God might have made the essence of a table different from what it is and just as He might or might not have created the world according to His inscrutable pleasure, so He might have willed that the radii of a circle should be unequal to one another; or that the three angles of a triangle should not have been equal to two right angles; or that contradictory statements should have been true at the same time. The eternal truths are not outside God and recognised by Him as such; they are eternal and true because recognised by Him. If God were not, they would not continue to be; just as they were created at His pleasure, so they depend for their continued existence upon the conservational activity of His will.³

From the point of view of logic, the problem clearly centres round our conception of the nature of the will of God; because our prospect of acquiring knowledge depends obviously on how far we can hope to understand, and, as it were, anticipate, the will of God. If we can understand the will of God, however imperfectly, knowledge may be held to be attainable. We may grant that it was the will of God that called all things and all thoughts and all the connexions between things and all the connexions between thoughts,

¹ *Resp.*, V., p. 380, 1-13.

² *Ibid.*, VI., p. 435, 22-26. See the whole paragraph to p. 436, 25 and cf. p. 432, 9-18.

³ *Ep.*, I., ex., p. 351; I., exii., p. 359; I., exv., p. 372; II., civ., p. 341.

into being, if only we can catch a glimpse into the working of that will. What, we may ask, is the relation of the will of God to the intellect of God, and what the relation between the intellect of God and the understanding of man?

To the former question Descartes gives an answer which, from the point of view of the building up of human knowledge seems to be satisfactory. The intellect of God and the will of God are one; God understands what He wills and wills what He understands, by one simple, indivisible, action. The universe, therefore, is not, it would seem, a chaos, because the will of God is, as it were, intellectualised.¹

That this precisely was not Descartes' meaning is clear not only from a general consideration of his philosophy but from a stricter examination of contexts.² His aim was not to intellectualise the will of God, but to voluntarise His intellect. The intellect of God is one with His limitless will. The eternal truths do not radiate from God as rays from the sun, so that from them we might be able to infer somewhat of the nature of God and the course of His will; but each individual one is a separate creation without any intelligible or necessary content in itself or connexion with any other. Even assuming then that the human intellect were by nature capable of the investigation of the universe (and we have seen that it is not), it would be met at every step by, as indeed in the final analysis it draws its own strength from, a power, which, as far as man is concerned, is completely a-rational; and which, for anything man can understand to the contrary, may be definitely irrational. Descartes presses this view so far as to say that the very logical necessity of the axioms of thought proves that they do not partake of the essence of God, because if they did, they would partake of His incomprehensibility as well.³ The very presence then

¹ Cf. Saisset's essay on *Le Dieu de Descartes* in *Essai de Philosophie Religieuse* (Paris, 1859), pp. 37-38.

² The stress of the passages is not on the fact that God's will works in accordance with the demands of intellect but that the activity of God is not complex, as in the case of man, but simple. "Nullo modo Deum sentire putandum est sed tantummodo intelligere et velle; neque hoc ipsum ut nos per operationes quodammodo distinctas, sed ita ut per unam semperque eandem et simplicissimam actionem omnia simul intelligat, velit et operetur" (*Princ.*, I., 23). This is brought out very clearly in Spinoza's account, where the unity of intellect and will of God is a corollary from His simplicity (*Princ. Phil. Cart.*, I., 17).

³ . . . quia mathematicas veritates perfecte comprehendunt non vero existentiam Dei, minime mirum est, si non credant illas ab hac pendere. Sed contra iudicare deberent quod, quandoquidem Dei potentia intellectus humani terminos excedit, istarum autem veritatum necessitas cognitionem nostram non superat, sequatur illas esse minus quid et potentiae huic incomprehensibili subordinatas. *Ep.*, I., cxii., p. 359.

of what we call reason is a sign of the absence of the essence of God. By insisting on the transcendence of God Descartes has overreached himself. God, howbeit, conceived as conserving cause, is so transcendent that His ways are unintelligible; and rational knowledge completely disappears.

§ 7. THE RESULTING SCEPTICISM.

The argument we have been discussing is, apart from its unfortunate close, only another example of the circular character of any argument in which the Cartesian God is concerned. We know nothing of God except through the aid of eternal verities, and it is therefore a glaring contradiction to treat them as dependent on His will. Descartes is brought back again and again to the original 'discrete' idea. All attempts to solve the original and primary difficulty of the logic have failed and we may now study it in its fullest consequences.

If thought cannot cohere with thought in the individual mind, then individual mind cannot accord with other individual minds; the unity which we deny to exist within the one, cannot spring up miraculously between the one and other ones. What appears to one man to be true may not be true for others, because confined as the individual is within the bounds of his own 'clear and distinct' idea, he can know and can pretend to know nothing about the 'clear and distinct' ideas of others. Even within the individual's own mind the clear idea brings with it no compulsion, for of his free will he may refuse to give it assent;¹ but if that is so within himself, how can he dream of its exercising compulsion both in himself and in another? There is then no cogency in argument and no universal truth. The very idea of God is itself the fruit of a merely personal speculation. "For my part," writes Descartes to an anonymous correspondent, "I would venture to say that I have found one proof which completely satisfies me and from which I know that

¹ "Atque hic dicam me numquam negasse quin positiva hæc facultas esset in voluntate. Contra enim existimo eam adesse non solum quoties voluntas determinat se ad istud genus actionum in quibus nullo rationis pondere in ullam potius quam in aliam partem inclinatur, sed etiam in omnibus eius aliis actionibus; ita ut voluntas numquam se determinet, quin illam exerceat; eousque ut etiam cum evidentissima aliqua ratio nos ad aliquid inclinatur, licet moraliter loquendo vix possimus contrarium facere, tamen absolute loquendo possimus; est enim semper nobis liberum, abstinere a prosequendo bono aliquo quod sit nobis clarissime notum aut ab admittenda veritate quapiam evidente; modo solum cogitemus bonum esse hoc ipso testari arbitrii nostri libertatem." *Ep.*, I., cxii., p. 360 (to Mersenne). Cf. p. 30, n. 1.

God is with more certainty than I know the truth of any proposition of geometry, but *I do not know whether I can make another understand it in the same way.*"¹ And this same note precisely is struck in his remarks to his intimate correspondent, almost philosophical confessor, Mersenne: ". . . At least I consider that I have found an argument by which metaphysical truths may be demonstrated more evidently than any propositions of Geometry. I say this in accordance with my own opinion; for *I do not know whether I can convince others of it.*"² This repeated statement, it may be said, was made only 'in his haste,' when he found that his demonstrations were not so generally accepted as he had expected. But in fact it is a direct consequent from the original premises, and if Descartes had not made it expressly himself, we would have made it for him.³ If to be true an idea must be discrete, then the communication of knowledge is as impossible as its discovery.

Conclusion: Knowledge and the Discrete Idea.

So the rationalism of Descartes results in a complete scepticism. 'Good sense or Reason,' may be, as the opening paragraph of the *Discourse* affirms, 'by nature equal in all men'; but it is also particular and individual to each man. 'Diversity of opinion' does not proceed from some men being 'more rational' than others, but from their being, if one may say so, differently rational from others. Descartes' very insistence on the fact of the individual possession of truths has led him to the explicit denial of a universal truth.

¹ Quod ad me attinet ausim dicere me invenisse unam quæ mihi penitus satisfacet et ex qua certius scio Deum esse quam Geometricæ ullius propositionis veritatem; sed nescio an possem efficere, ut illam eodem modo quilibet intelligat ac ego. . . . *Ep.*, II., ciii., p. 334.

² . . . Saltem puto me invenisse rationem qua veritates metaphysicæ demonstrari possint evidentius quam propositiones quævis geometricæ. Hoc quidem secundum sententiam meam dico; nam nescio utrum id aliis suadere poterō. *Ep.*, II., civ., p. 340.

³ A very similar criticism was made by Leibniz. "Cartesii ratiocinatio de Entis perfectissimi existentia supposuit Ens perfectissimum intelligi posse, sive possibile esse. Hoc enim posito quod detur eiusmodi notio, statim sequitur existere illud Ens, quoniam ipsum tale finimus ut statim existentiam contineat. Queritur autem an sit in nostra potestate tale Ens fingere, sive an talis notio sit a parte rei, clareque ac distincte sine contradictione intelligi possit. Dicent enim adversarii talem notionem Entis perfectissimi sive Entis per essentiam existentis esse chimeram. Nec sufficit Cartesium provocare ad experientiam et allegare quod idem eiusmodi in se clare distincteque sentiat, hoc enim est abruptum, non absolvere demonstrationem, nisi ostendat modum per quem alii quoque ad eiusmodi experientiam venire possint; quotiescumque enim inter demonstrandum experientias allegamus, debemus aliis quoque modum ostendere faciendi eandem experientiam. . . ." Stein, *Leibniz und Spinoza* (Berlin 1890), p. 282.

In so far then as he was in search of, and believed himself to have found, a logic which should help in the discovery of, and provide a theory for, truth, he must be pronounced to have failed.

It remains to show that this failure of Descartes was clearly and expressly recognised by Spinoza, and that it was precisely on the question of the possibility of building up a logic on the basis of 'clear ideas' that the primary cleavage between the two thinkers arose.

(To be concluded.)

III.—THE PARADOX OF THE SYLLOGISM SOLVED BY SPATIAL CONSTRUCTION.

BY BENJAMIN IVES GILMAN.

THE syllogism has been a paradox ever since it was invented. The conclusion, if it impose itself upon us, does not, in the usual phrase, "*go beyond*" the premisses; yet it seems to give us new knowledge. The deductions of mathematics, strictly so-called, form an immense body of necessary truth before unsuspected, yet they all consist of propositions each of which is already "*contained in*" previous propositions. This is assuredly a disconcerting difficulty, and one not finally overcome by the current explanation that a syllogism "*brings out*" the necessity of a conclusion that was not before in our minds. If it was not before in our minds, how is it necessary? The puzzle remains.¹

Propositions and the syllogism in which they are combined may be represented as spatial facts; and the representation proves to give a visible answer to the question how the syllogism advances while compelling thought.

I.

There are two possible forms of proposition. One denies, the other affirms, the existence of things exhibiting the combination of characters represented by the two elements of the proposition, or terms, called subject and predicate. The first is the universal proposition All S is P; better expressed in its

¹The chief modern critic of the syllogism was John Stuart Mill. In his *Logic*, Book II., Chapter III., § I, he writes of the syllogism:—

"All men are mortal

The Duke of Wellington is a man

∴ The Duke of Wellington is mortal.

"The proposition that the Duke of Wellington is mortal is evidently an inference; it is got at as a conclusion from something else; but do we, in reality, conclude it from the proposition, All men are mortal? I answer, No."

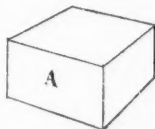
We conclude it in reality, Mill thinks, from the particular observations we have made of the mortality of men. "The inference is finished when we have asserted that all men are mortal. What remains to be performed afterward is merely decyphering our own notes."

character of denial by the phrase No S is not P. The other is the particular proposition, Some S is P. In mathematical symbols, using a stroke above a letter to mean the word "not," and 0 and 1 to mean non-existence and existence respectively, the two propositions become

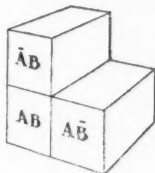
| | | | |
|------------|---------------------|-------------|-----------------|
| Universal | $\overline{SP} = 0$ | All S is P | (No S is not P) |
| Particular | $SP = 1$ | Some S is P | |

The three propositions constituting a syllogism employ three terms and in the recognised forms of syllogism combine them in the three possible ways; as AB and AC in the premisses and BC in the conclusion. Let us now give a spatial interpretation of the meaning of propositions and the syllogism.

All the things exhibiting a given character may be conceived as brought together in a closed space. Let us conceive accordingly that all the things termed A, that is, exhibiting the character A, or briefly all the A's, are brought together in the lower half of a cube, thus:—

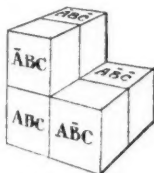


Let us suppose again that all the A's that are at the same time B's, or briefly all the AB's, are gathered on the left of a longitudinal partition halving the block. The remainder of the A's, or all the $\overline{A}B$'s, will remain on the right side. There may be B's likewise other than those that are A's; and let us provide an adjoining space for these AB's by crowning the AB space by another like space. The three spaces will then be arranged as follows:—



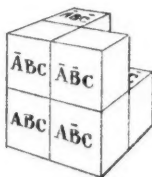
Let us suppose again that all the objects in these three classes that are also C's are brought together in the front

halves of the three spaces, leaving the rear halves for those that are not C's; or diagrammatically.



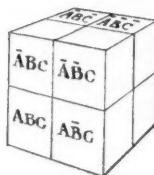
(The bottom half block whose faces are here concealed contains the ABC 's.)

But just as provision was to be made before for some B's that might not be A's, so now again provision is to be made for some C's that may be neither A's nor B's. Let us to this end add a fourth half block to the trio already containing C's, thus :—



(The bottom half block whose faces are here partly concealed contains the ABC 's.)

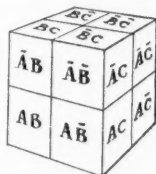
One half block is lacking to give the combination the form of a perfect cube; and this half block is naturally indicated as the space in which to gather all the things that are neither A's nor B's nor C's. These things are no less than everything in the universe except the A's and B's and C's. We can accordingly either leave that space open as a part of circumambient infinity, or, by closing it in, signify that the whole universe has been brought within the completed figure, thus :—



The Universe.

(The half blocks whose faces are here partly or wholly concealed contains the ABC 's and ABC 's.)

Considering the whole contents of the block contained between the lower left-hand quarter face and its opposite, we find that the front half of the block contains the AB 's which are at the same time C 's, and the further half those which are not C 's, that is, all the rest of the AB 's. The whole block, therefore, contains all the AB 's. Likewise each one of the other possible blocks, reckoned either forward and back, up and down, or right and left, contains the whole of a class of things indicated by some other combination of two of the letters A , B , and C with their negatives. Let us now inscribe on each of the twelve visible quarter faces of the cube the combination of two letters signifying the kind of things the whole of which are gathered between that quarter face and the opposite external quarter face of the cube. The lettering will be as follows:—



The Universe.

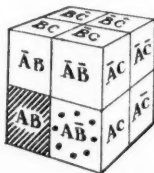
Regarding the contents of any block so defined, the two possible statements are either that it has none, or that it has some; either that there are no objects combining the characters inscribed on its face or that there are some such objects. For example: for the block whose face occupies the lower left-hand quarter of the front of the cube, the statements are either that no such things as AB 's exist, symbolically $AB = 0$, or that such things as AB 's do exist, symbolically $AB = 1$. The two statements are respectively the universal and the particular proposition about the class AB .

These two propositions are radically different in that the universal tells us that wherever in the block named in the proposition—and in which by construction all the things of that name that may exist are gathered—we look, that is, in whichever half, we shall not find any contents; while the particular tells us that some contents will be found there, but does not tell us where to look, that is, in which half.

The two propositions differ again in an interesting way, not to be pursued here, in that no amount of experience enables us to make the universal statement—for who are we

to fathom the universe—while the particular proposition needs only a single experience for its justification.

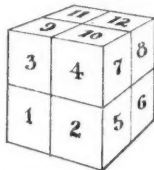
Let us now speak of the universal proposition as *removing* its block, and of the particular proposition as *establishing* it; and let us picture the removal of a block on our diagram by crosshatching its face, and its establishment by dotting its face.



Symbolically, $AB = 0$, $A\bar{B} = 1$.

Let us then inquire what possible combinations of two blocks removed or established remove or establish others. The removal or establishment of any blocks in this way, or as we may say *derivatively*, will be a simultaneous outcome of the two other, or, as we may say, *original* removals or establishments. Regarding removals or establishments as symbols of propositions, the derivatives will be what are called necessary conclusions from the two originals combined called premisses. The total combination of originals and derivatives will represent what we call a syllogism. Our inquiry, therefore, aims at the discovery of the possible forms of syllogism.

From the following figure it is evident that there are four possible different combinations of two blocks:—



The blocks combined may be—

Neighbours, as 2 and 1.

Diagonals, as 2 and 3.

Adjacents, as 2 and 5.

Contiguities, as 2 and 7.

For one block may touch another either along the side (*Neighbours*) or at the corner (*Diagonals*) of faces on the

same side, or along the side (*Adjacents*) or at the corners (*Contiguities*) of faces on different sides.

It is evident that the removal of two blocks establishes none, and removes only such others as they make up between them. Only *Neighbours* and *Contiguities* make up new blocks between them.

It is evident further that the establishment of two blocks removes none; and it proves also to establish none. This latter fact appears on inspecting the four relative positions which the two established blocks may occupy. The establishment of the *Neighbours* 2 and 1 establishes no others. For to say that there are contents in both 2 and 1 is not to say that there are any contents in either 3, 4, 7, or 8; nor is it to say that there are any contents in 5, for the contents may all be in the further halves of 2 and 1; nor that there are any contents in 6, for the contents may all be in the hither halves; and likewise for 9, 10, 11 and 12. A similar proof applies to the combined establishment of *Diagonals*, *Adjacents* and *Contiguities*.

It is evident finally that the establishment of one block and the removal of another removes no other and establishes others only when the two coincide in part. For only when the removal of half of the block established assigns its contents to the other half are the blocks established into which the remaining half enters. Only *Adjacents* coincide in part.

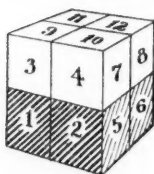
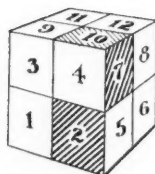
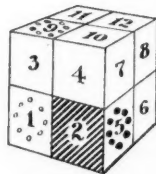
Thus there appear but three cases in which the combination of two blocks, whether by removal or establishment, removes or establishes others. These cases are (1) the removal of *Neighbours*, (2) the removal of *Contiguities*, and (3) the removal of one of two *Adjacents*, and the establishment of the other.

Let us indicate derivative blocks by lighter cross-hatching and dotting. The figures on p. 44 will then show them together with their originals in all three cases.

Upon inspection it proves that the removal of *Neighbours* removes the adjacent neighbours; the removal of *Contiguities* removes their common adjacent and the removal of one of two adjacents with the establishment of the other establishes both adjacents of the opposite end of the block established.

II.

Let us now translate these spatial results into the logical facts which the symbolism expresses, recalling that removal means that the block AB has no contents and symbolises the universal proposition $AB = 0$; and that establishment means

*Neighbours.**Contiguities.**Adjacents.*

that the block AB has contents, and symbolises the particular proposition $AB = 1$.

Neighbours.—The derivative removals or the conclusions from the premisses $AB = 0$ and $A\bar{B} = 0$ are the propositions $AC = 0$ and $A\bar{C} = 0$. While these conclusions are new statements they convey no new idea. Since the two blocks AB and $A\bar{B}$ contain by construction all the A 's, we know that any other block inscribed with A is also empty in advance of reading its inscription; or, the idea $AC = 0$ or $A\bar{C} = 0$ arises in the mind in recognising the term A and not in apprehending the propositions. Although the conclusions from *Neighbours* represent a changed viewpoint, they express no advance in thought.

Contiguities.—The single derivative or conclusion from the original removals or premisses $A\bar{B} = 0$ and $\bar{A}C = 0$ is the proposition $\bar{B}C = 0$. Here an idea is presented which enters the mind only with the proposition itself and not with either term. The originals, or the premisses, have not informed us that either term does or that it does not exist. The logical fact that the two terms of the conclusion have not come together in our minds before is symbolised by the spatial fact that the inscription on the derivative block is first seen when we regard it in a direction perpendicular to the plane of the originals. Since knowing consists in treating things together, this point of view makes known the hitherto unknown. The conclusion from *Contiguities* expresses at once

a changed viewpoint as that from *Neighbours* did, yet a more radical one, and hence an advance in thought as the conclusion from *Neighbours* did not.

Adjacents.—Here the results reached in the other two cases are combined. The originals, the removal $\overline{AB} = 0$ and the establishment $AC = 1$, establish as derivatives or conclusions the two propositions $AB = 1$ and $BC = 1$. The first, like the argument from *Neighbours*, is a new statement conveying no new idea. Since the two blocks AB and \overline{AB} contain by construction all the A's, when we know that A exists, in the form AC , and \overline{AB} does not, we know that AB does. It is otherwise with the other derivative, as in the argument from *Contiguities*. The two terms B and C have not come together in our minds before. A statement uniting them makes known the hitherto unknown. This logical fact is symbolised as before by the spatial fact that we cannot see the inscription on the face of this derivative until we take the perpendicular point of view. This conclusion from *Adjacents* expresses at once a changed view-point as did the conclusion from *Neighbours*, albeit again a more radical one, and hence an advance in thought, as did the conclusion from *Contiguities*.

If this analysis be sound, the paradox of the syllogism yields to spatial construction. There are two forms of deductive or necessary inference whose conclusions consist of ideas not apprehended in the premisses. These are the conclusion from *Contiguities* and the perpendicular conclusion from *Adjacents*. The conclusion from *Neighbours* and the plane conclusion from *Adjacents* are verbal novelties only and not additions to our knowledge. These do in fact derive their necessity from their character as pure reformulations of the premisses. The ancient indictment of the syllogism holds against these sterile deductions. It does not apply to the two fruitful syllogisms. The conclusion from *Contiguities* and the other conclusion from *Adjacents* are both necessary and new.

If by the statements—"the conclusion of a syllogism does not go beyond" or "is contained in" the premisses we mean that the conclusion makes its assertion about no other things than those treated of in the premisses and asserts no more about them than they, these statements are true as the spatial construction makes clear. The conclusion is represented by a block devoted partly or wholly to part of them and it asserts that there are or there are not contents in this part as the premisses did. Herein lies the necessity of the conclusion.

If, on the other hand, these critical phrases mean that the conclusion about the part does not differ from the premisses about the whole and thus is no increment of thought, they are false, as the spatial construction also shows. What the premisses have to teach we first learn when our glance has another dimension from theirs. The derivative is a new block including a part of the original blocks; or, the conclusion constructs a new proposition out of part of what the premisses have said. Herein lies the novelty of the conclusion.

Let us express these results also in words. The two varieties of sterile deduction are the following syllogisms:—

Neighbours.

| | | |
|-------------|--|----------------|
| No A is B | No chimera (A) is a vertebrate (B) | $AB = 0$ |
| No A is B | No chimera (A) is not a vertebrate (B) | $A\bar{B} = 0$ |
| ∴ No A is C | No chimera (A) is warm-blooded (C) | $AC = 0$ |
| and | | and |
| No A is C | No chimera (A) is not warm-blooded (C) | $AC = 0$ |

Adjacents (Plane).

| | | |
|-------------------|--|----------|
| No A is \bar{B} | No redeemable currency (A) is unstable (B); or, All redeemable currencies are stable | $AB = 0$ |
| Some A is C | Some redeemable currencies (A) are now in circulation (C) | $AC = 1$ |
| ∴ Some A is B | Some redeemable currencies (A) are stable (B) | $AB = 1$ |

The two varieties of fruitful deduction are the following syllogisms:—

Contiguities

(called Barbara in the books on logic).

| | | |
|-------------------|---|----------|
| No A is \bar{B} | No men (A) are immortal (B); or, All men are mortal | $AB = 0$ |
| No C is A | No Americans (C) are not men (\bar{A}); or, All Americans are men | $CA = 0$ |
| ∴ No C is B | No Americans (C) are immortal (B); or, All Americans are mortal | $CB = 0$ |

Adjacents (Perpendicular)
(called Darii in the books on logic).

| | | |
|--------------------------|--|----------------|
| No A is \bar{B} | No Pharaohs (A) failed of reverence as gods (\bar{B}); or, All Pharaohs were revered as gods | $A\bar{B} = 0$ |
| Some C is A | Some Ptolemies (C) were Pharaohs (A) | $CA = 1$ |
| \therefore Some C is B | Some Ptolemies (C) were revered as gods (B) | $CB = 1$ |

III.

Light is thrown on the three processes of deduction—from *Neighbours*, *Contiguities*, and *Adjacents*—by examining the application of each to its result.

The reapplication of the process of removing *Neighbours* to its derivative leads back to the originals as secondary derivatives. For the derivatives of *Neighbours* being themselves *Neighbours*, their removal removes the adjacent *Neighbours*, that is, the originals again; the continuation of the process being an endless alternation.

The reapplication of the process of removing *Contiguities*, to its derivative, leads on to a new derivative. The reapplication may occur in either of two ways corresponding to the two different blocks contiguous to any one. Taking advantage of this freedom the process may be reapplied continuously until all the blocks have been drawn in and have been removed by derivation. Thus the removal of 2 and 7 removes 10; of 10 and 8, 4; of 4 and 6, 12; of 12 and 3, 8 again; of 8 and 9, 3 again; of 3 and 10 again, 7 again; of 7 and 1, 9 again; of 9 and 2 again, 5; of 5 and 12 again, 2 again; of 2 again and 11, 6 again; of 6 and 3 again, 11 again; of 11 and 5 again, 1 again, completing the list.

The reapplication of the process of removing one of two *Adjacents*, and establishing the other, to its derivatives, either is impossible or establishes the original again. For the derivatives are the two adjacents of the opposite end of the block established; hence the reapplication of the process by the use of either (1 or 9), where the three blocks meet, would remove the original just established (5); while at the other end of either derivative (1 or 9) the removal of either adjacent (6 or 11 for 1, and 3 or 7 for 9) would again establish the original.

We have hitherto considered the reapplication of arguments by the use of the same terms as before. What would

happen were a new term introduced? The spatial equivalent of its introduction is such a rearrangement of the contents of the cube, in a direction parallel to the block representing the conclusion, as will carry into one half of the cube all the things exhibiting the new character. It appears upon examination that the rearrangement gives a new type of freedom only in the case of *adjacents*.

The result of using new terms in succession in the argument from *Neighbours* is to prolong indefinitely its previous empty alternation; and in the argument from *Contiguities* to prolong indefinitely its previous yield of new propositions. The (*quasi*) knight's move of Contiguity enables us to climb where we will over the universe, and on our way to investigate every new quality of every existing thing. In the argument from *Adjacents* the introduction of a new term makes possible a new syllogism, confined as before to a single step. But while the method of *Adjacents* yields but one deduction, this single one may not stand by itself. It may prolong and in prolonging close a chain of reasoning from *Contiguities*, and the possibility correspondingly enlarges the range of the deductive process. The immense achievements of the inquiry into space and number alone, represented in mathematical science strictly so-called, is an earnest of the infinite possible deductive development of knowledge.

Further light is thrown on the three processes by considering the spaces, or classes, concerned in the premisses and conclusion of each. The outcome of the argument from *Adjacents* differs in an important respect from the outcome of the other two arguments. It is *sui generis* in taking the form only of propositions while actually asserting the existence of a class of things exemplifying all three instead of but two of the terms entering into the syllogism. The premisses have to do with three such classes. In the arguments from *Contiguities* and from *Neighbours* they have to do with four, of which the conclusion from *Contiguity* concerns two and that from *Neighbours* concerns all. Symbolically, the space actually established in the argument from *Adjacents* is one-third of the establishing and removing spaces, the space removed in the argument from *Contiguities* is one-half, and in the argument from *Neighbours* the whole of the removing spaces.

The three forms of deduction, from *Neighbours*, from *Adjacents* and from *Contiguities*, may be compared to a man's steps. The inference from *Neighbours* is like the action of a man who with his feet in the position of a stride (corresponding to the premisses) swings on both heels to face in another

direction (the two conclusions). There is movement (corresponding to the change of terms) but the feet remain planted (the new propositions emerge without any added thought) and the process may continue indefinitely to no better effect. The inference from *Adjacents* is like the action of a man whose stride has planted one foot so deeply (corresponding to the unique conclusion) that another step is impossible without a fresh start. There has been movement forward (corresponding to the new idea) but a movement which in striving to continue returns upon itself (corresponding to the impossibility of using the conclusion to reach a new conclusion without the use of a new term). Finally, the inference from *Contiguities* resembles the act of walking. A man's feet may be placed apart (the premisses asserted) without a movement forward, but the position permits of a bodily change (corresponding to the advance of thought presented in the conclusion) transferring the weight to one foot and freeing the other for a new position (corresponding to the new *Contiguity* brought in as a new premiss) which in turn makes possible a further transfer of weight (a new conclusion) and so on indefinitely. The process of deduction, which we instinctively call a step, has not without good reason received that name.

A linguistic analogy, whatever its aptness or inaptness, has no other than an illustrative bearing on the present thesis. Will the preceding geometry convince doctors in logic, as it has convinced me, that the paradox of the syllogism may be seen to be none with the aid of a spatial construction?

IV.—KANT'S TRANSCENDENTAL DEDUCTION OF THE CATEGORIES.¹

BY A. C. EWING.

THE importance of Kant's transcendental deduction is patent if it establishes what it claims to do. It appeared at a moment when philosophy was in the sorest need of some such proof to deliver it from scepticism, for both the German rationalists and the English empiricists had failed, not only to supply rational justification of such fundamental beliefs as the existence of a world external to the individual consciousness or the principle that every change must be caused, but even to explain the very possibility of acquiring fresh knowledge (as opposed to particular, unconnected experiences), so that philosophy seemed reduced to either formulating analytic judgments which everybody knew already, or inventing synthetic judgments which it could neither prove nor even suggest a method of proving. Now Kant claims to have at one stroke justified the fundamental presuppositions of science and ordinary life and discovered a totally new method of procedure in philosophy, a method by which it is possible to prove a system of really synthetic *a priori* principles, and to establish a complete philosophy of all that concerns human experience directly. In this philosophy the foundation on which all else depends is the transcendental deduction of the categories. It is therefore of the greatest importance to see what the results of this deduction are, and how far we can at the present day accept them.

The task which Kant set himself here is that of deducing the existence of an objective world involving necessary laws from the indisputable data of immediate consciousness. What we are immediately aware of is a manifold of perceptions passing away and succeeding each other in time, or, to put it more simply, we are immediately aware of change. Now although the dictum of Descartes, "I think, therefore I am," cannot be held to prove the existence of a self in its usual sense, *i.e.*, a permanent subject of our changing percep-

¹ The references are to the original pages of the *Critique* (A = first, B = second, edition).

tions, it does prove the impossibility of doubting the occurrence of immediate experience; a man cannot doubt that there is experience, because the doubt is itself an experience. Nor can it be doubted that we immediately experience change; at least no sceptic has been found to doubt it. So Kant started from a point of view admitted by all critics, namely, the consciousness of a manifold of successive representations. Now we shall practically confine our discussion to the views expressed as to the relation of the self (transcendental unity of apperception) and objects, and to the proof of the transcendental unity of apperception itself. We shall take the versions of both editions together as supplementing and completing each other, and try to follow the logical order and implications rather than the actual order of Kant's statement.

To begin our summary of the argument, it is admitted that we are conscious of a changing manifold of representations. But we cannot be conscious of a manifold as a manifold, unless we can combine its diverse elements in thought. To be conscious of ABC it is not enough to be conscious of A, B, and C separately, we must be conscious of them as together. Now what we are conscious of is always a process in time. Therefore we must be conscious of the various stages of the process together, while distinguishing the times at which they severally occur (the synthesis of apprehension in perception). But, if we had forgotten the first part of the process when we experienced the last part, this would be impossible, therefore we must be conscious that the first part has already occurred when we experience the last part (the synthesis of reproduction in imagination). Further we must be aware of the first and the last part as belonging to a single process, or, in other words, as connected elements in a single object of thought; otherwise we should not be conscious of them as a whole at all, so that we could not describe them as constituting together even only a changing manifold (the synthesis of recognition in concepts).

Consciousness of the manifold is thus described as presupposing a threefold synthesis, but the important point about the doctrine of the synthesis is not its actual occurrence as a psychical event, but the discovery that consciousness of its results is implied in consciousness of change. Being unconscious itself, the synthesis can only be described in terms of its results for consciousness; it is only as the unification of the manifold for consciousness that the synthesis has any meaning at all. The argument for the occurrence of a synthesis is nothing but an argument to show that apprehension of the manifold involves apprehension of it as constituting an object

for thought, so that consciousness of change implies consciousness of objects. Further, consciousness of any particular object must involve consciousness of the particular unifying principle by which the diverse elements which constitute it are combined in a single whole. But to be conscious of any complex as constituting a single object of thought we must be conscious of its different aspects as united by a single act of thought, since for Kant all relation is an act of the mind. Now it is just this unity that we mean when we speak of consciousness of an identical self. We do not mean, in speaking of the self as identical, either that the empirical self as an object of introspection is unchanging, or that the different stages and elements in the experience of the self are connected by a mere *de facto* resemblance; we mean that different elements in experience are capable of being united in a single act of thought, and that in so far as we are aware of this union we are self-conscious. Consciousness of change is therefore found to involve both consciousness of objects and consciousness of self.

Now the doctrine of the threefold synthesis constitutes the main part of what Kant in his preface to the first edition calls the subjective deduction. There¹ he describes it as psychological, and consequently disparages its importance. He regards it as a hypothetical proof of the actual occurrence of certain syntheses necessary causally to account for self-conscious experience; the "objective" deduction, on the other hand, being an analysis of what is logically implied in the concept of experience. "The one" (*i.e.*, the objective deduction) "refers to the objects of pure understanding and is meant to establish and make intelligible the objective validity of its *a priori* concepts; just for this reason is it indeed essential to my purpose. The other" (*i.e.*, the subjective deduction) "is meant to deal with the pure understanding itself as regards its possibility and the cognitive faculties on which it is based, and so treat it from the subjective side. Now, although this exposition is of great importance for my main purpose, yet it is not an essential part of it. For the main question always is—What and how much can understanding and reason come to know without the help of any experience, and not—How is the faculty of thought itself possible?" This statement justifies the view that the deduction does not depend on the actual occurrence of the synthesis as a psychical process prior to consciousness and, as a general warning against laying too much stress on the somewhat faulty psychology of the *Critique*, should be always borne in mind; but it is impossible rigidly to

¹ A X., XI.

divide the deduction into two parts, the one psychological and unessential, the other epistemological and essential, for important metaphysical truths are sometimes expressed in psychological form. Kant's remark about the subjective deduction does not do justice to his own argument. For it is not by empirical introspection but by analysis of what must be involved in any possible experience that he arrives at the threefold synthesis, and the proof of its occurrence is essentially a proof that consciousness of the manifold as connected or as having a synthetic unity is implicit in consciousness of change. Further, it is the clearest statement of this doctrine in the whole deduction, and although in other passages the synthesis is formally different—it is generally treated as a single synthesis carried out by the imagination—this does not alter the validity of the proof that cognition of anything always involves consciousness of it as a connected object of thought. Without such consciousness judgment would be impossible, for to judge about anything we must recognise it as so-and-so, we must know it as it is or at least ascribe some definite character to it, whether rightly or wrongly. But since the object of judgment is never anything absolutely simple and unrelated, internally and externally, the consciousness that accompanies judgment always involves the holding together by the mind of a diversity in unity; it is always consciousness of something as having different but related aspects; it is never consciousness of a mere representation, but always of a representation as referred to a system wider than itself and relatively independent of the act of cognition, whether that system be the empirical self or belong to the physical world; in other words it is consciousness of an object. Without such consciousness we might still feel, like animals, but we could not know our feelings as feelings, and consequently we could not judge either about them or about anything else. A philosophy that denied this consciousness would be forced to be a dumb philosophy, and so would be a contradiction in terms.

Now for Kant the presupposition of all consciousness is self-identity (the transcendental unity of apperception). On this he lays great stress, and it is treated almost as an axiom by him. The proof of it given in the second edition deduction is little more than a statement of the doctrine to be proved. ¹ "The manifold representations, which are given in a perception (*Anschauung*), would not all be *my* representations, if they did not all belong to a single self-consciousness, i.e., as *my* representations (even though I am not conscious of them as such); yet they must necessarily conform to that

¹ B 132.

condition under which alone it is *possible* for them to stand together in one universal self-consciousness, for otherwise they would not all belong to me." Now this way of putting the argument is quite inconclusive, for the sceptic might say that I could not legitimately speak of "my representations" but only of "representations," or, more likely, might, like Hume, contend that "my" only implied a certain likeness in quality, or a peculiar kind of relation not involving anything of the nature of a permanent self. A similarly unsatisfactory statement of the argument is given in the first edition.¹

But the real proof of self-identity, as the necessary presupposition of all knowledge, is clearly implied in the two-fold doctrine that we can know nothing, even our perceptions, except as an object held in unity by the relating activity of the mind, and that self-identity is for us only expressed in this unity, might in fact almost be described as but another aspect of this unity.¹ "For the empirical consciousness, which accompanies the various representations, is in itself dispersed and has no reference to the identity of the subject. This reference does not consist in the fact that I accompany every representation with consciousness, but in the fact that I *add* one representation to the others and am conscious of their synthesis. So it is only because I am able to combine a manifold of given representations *in a single consciousness* that it is possible for me to represent to myself *the identity of my consciousness in these representations*." In other words, Kant held that the only path to knowledge of our self-identity was through knowledge of the connexion of diverse elements in all objects of our thought, but if it is the only path it is obviously *a* path to knowledge of self-identity. Our identity as conscious selves is for Kant no unproved assumption, but is deduced from the possibility of being conscious of anything related as such (and all cognition is of the related), since he must have been aware of this implication of his argument. For us to be conscious of an object as constituted by a relation of diverse elements we must clearly be conscious of these elements as together, and this means that they must be united in a single consciousness, which is just what is meant by the transcendental unity of apperception. That Kant did not make this deduction of self-identity more explicit is certainly strange, but he is less concerned with this aspect of the deduction than with the limitations of our knowledge of self and the deduction of an objective world involving necessary laws. At any rate he does not include the proof of the transcendental unity of apperception as one of

¹ A 116, 122.

the objects of his work in the statement of the latter in the introductory part of the *Critique*. However, in a footnote¹ to the second edition deduction, he says that the proof of the doctrine that the manifold in perception is represented as belonging to the necessary unity of self-consciousness through a synthesis by the categories rests "on the represented *unity of perception*, by which an object is given. This unity always involves a synthesis of the manifold given in a perception, and so already includes the reference of this last to the unity of apperception." Also in a first edition passage he seems to deduce unity of apperception from consciousness of relation.² "Now there can take place in our mind no cognitions (*Erkenntnisse*), there can be no relation and unity between cognitions, without that unity of consciousness, which precedes all data of perception, and in relation to which all representation of objects is alone possible"; but too much stress must not be laid on this last passage, because it was probably composed at a very early date. The transcendental unity of apperception is regarded as the general form of unity common to all possible objects of experience and itself the source of all the special forms of unity. It seems that self-identity, in the sense above explained, must involve some degree of empirical consciousness of our identity, for, as the transcendental unity of apperception is only realised in the particular forms of relation involved in the consciousness of empirical objects, the consciousness of these objects can hardly be separated from the consciousness of self as identical. However, we should note Kant's remark.³ "This representation" (*i.e.*, the representation of "I think, or of self-identity") "may be clear (empirical consciousness) or obscure. We are not concerned with that here, nor even with its existence, but the possibility of the logical form of all knowledge depends necessarily on its relation to this apperception *as a faculty*."

But, if the fact that we are conscious of objects proves self-identity, conversely, this self-identity can only be known as the presupposition of consciousness of objects, and has for us no meaning apart from the synthesis by which we unify the manifold so as to constitute consciousness of objects. It is only in relation to this synthesis that the self can be regarded as identical. It might be thought that this was nothing but an appeal to ignorance, but that is not the case; for the unchanging identity of the self is no possible *object* of experience, and, therefore, in relation to possible experience at any rate (whether any knowledge be attainable by us outside that sphere or not), it can only be known as the subject

¹ B 133; B 143.² A 107.³ A 117 (footnote).

which is the presupposition of all experience ; for, to be known at all in relation to experience, it must be either a particular object in the empirical content of our minds or a presupposition of all experience. Further, it is just as true that, to be aware that I in perceiving A am the same self who perceived B, I must be conscious of the combination of A and B in a single process of thought, as that, to be aware of A and B together, I must be the same self when I perceive A as when I perceive B. Besides, for Kant, the transcendental unity of apperception was an absolutely identical unity which could include no diversity, and therefore we could only be aware of it in opposition to the diversity of perceived data. Self-consciousness and consciousness of objects are strictly correlative and imply each other. This is shown by the very names applied to them, the former being called the analytic and the latter the synthetic unity of apperception. Neither can be strictly called prior to the other, and Kant quite legitimately argues at one time from the consciousness of self to the consciousness of objects, at another from the consciousness of objects to the consciousness of self, thus showing their mutual implication. The two are regarded as developing *pari passu*, so that complete knowledge of self would be impossible without complete knowledge of the objective world. In the empirical sphere explicit consciousness of our representations as ours, so far from being, as subjective idealism holds, the psychological starting-point from which we infer an external world, is both in the individual and in the race a later development, preceded by long reflection on the objects that surround us, although no doubt in a sense this consciousness is implicit in all consciousness of objects.¹ "So the thought that these representations given in perception all belong to *me* just means that I unite them in one self-consciousness, or can at any rate thus unite them ; and although the thought is not yet the consciousness of the synthesis of representations, yet it presupposes the possibility of the latter, *i.e.*, it is only because I am able to comprehend their manifold in one consciousness that I call them all together *my* representations, for otherwise I should have as variegated, multiple a self as I have representations of which I am conscious."

But among objects we should include the empirical self, and not only physical objects. Kant carefully distinguishes the self as revealed by empirical introspection from the transcendental unity of apperception. The former is for him² strictly analogous to the external world, and, like the latter,

¹B 134.²B 152-159.

phenomenal. For we can only cognise the self by making it, or rather our representations of it, an object to our mind, and this needs a synthesis under the form of inner sense, time, and the various categories, exactly similar to that synthesis which the consciousness of external objects requires, except that the form of outer sense, space, is also required in the latter case. Just as we only know external objects as they appear to us, so we only know ourselves as we appear to ourselves. As the transcendental unity of apperception is only realised in consciousness of objects, so also consciousness of the empirical self implies consciousness of objects. Indeed, it does so in two senses—for, first, we are only conscious of our empirical self, as of anything in the physical world, by making it an object to ourselves; and, secondly, the activities or states of feeling we observe in the self have always reference, whether directly or indirectly, to some external object. Sometimes, of course, the object of a conation (or cognition) or the cause of an affection may be something in the empirical self, as when we seek to overcome a mood of depression or to analyse our feelings for psychological purposes, or feel shame because we judge the motives of an act done by us to have been unworthy, and the conation or affection thus excited may be itself made the object of introspection; but even so we always find that the ultimate stimulus of that in ourselves which has now become an object to ourselves was not anything in the self taken apart from environment but something in the environment working on the psychological disposition of the self.

In this summary I have, in making consciousness of our changing representations the basis from which all else is deduced, adopted a standpoint nearer that of the first than that of the second edition. In the latter Kant concentrates his powers on the relation of consciousness of objects to self-consciousness, *i.e.*, on what is logically the second stage of the deduction, neglecting the transition from consciousness of representations to self-identity and consciousness of objects. The explanation of this neglect may be found in the two probable suppositions—that there was little need of defending self-identity at the time but great need of showing the dependence of self-consciousness on consciousness of objects and the consequent limitations of the former, and, secondly, that Kant with his strong private opinions on the spiritual and primary character of the self was apt to treat self-identity as an axiom. However, even in the second edition deduction, he insists that consciousness of the “pure manifold” of perception, space, and time, and hence all empirical perception,

involves an *a priori* synthesis. The extension of this conclusion to particular empirical perceptions is twice stated in the second edition version. ¹ "The synthetic unity of consciousness is, therefore, an objective condition of all knowledge. It is not merely that I need it in order to cognise an object, but that every perception must stand under it, *in order to become an object for me*, for in no other fashion, nor without this synthesis, would the manifold be united in one consciousness," and again, "Consequently all synthesis, which alone renders perception itself possible, is subject to the categories".

In the first edition Kant starts, not with the transcendental unity of apperception, but with the manifold of representations, in A 99, and it is not till A 104 that he asks what is meant by referring representations to an object, nor till A 107 that he introduces the transcendental unity of apperception at all. Moreover, the detailed proofs of the different categories given in the *Analytic of Principles*, all start from consciousness of change in the manifold of our representations. The conclusion that consciousness of representations, or, in other words, of a changing manifold, is the logical starting-point, is also supported by the fact that it is in the later passages of the first edition (*i.e.*, the passage concerning ² the threefold synthesis and the chapter on schematism ³), not the earlier, that most stress is laid on change or the temporal aspect of experience. These facts, with the passages quoted earlier in the article, when I was trying to show that the argument as given involved the deduction of self-identity from consciousness of representations just because we are always conscious of our representations as related (or put together by the mind in a synthesis prior to consciousness, as Kant chooses to express it), and the impossibility of supposing that Kant failed to realise either the need for such a deduction or the fact that this deduction was implicitly contained in the argument on the relation between consciousness of self and consciousness of objects, seem amply to justify us in regarding consciousness of our changing representations as the logical starting-point of the whole transcendental deduction.

Beginning here we may now tabulate the main points held to be proved by the deduction. In this article we have confined ourselves to a discussion of the first two. (1) Consciousness of our representations, as such, being always consciousness of a diversity in unity, is impossible unless the different elements are both united in a single object of thought and are simultaneously present to a single consciousness; in other

¹ B 138.² A 97-104.³ B 176-187.

words, consciousness of our representations as representations,¹ which is not denied even by the sceptic, involves both consciousness of them as objects and transcendental unity of apperception, or self-identity. (2) We can only regard the self as identical in so far as it holds together different elements in a single act of thought. This identity is a presupposition of all knowledge and not an empirical fact discoverable by introspection. Without it consciousness of objects would be impossible, but at the same time consciousness of it is only possible through consciousness of objects, for the two are only realised in the same synthetic unity of the presented. ² (3) What we experience is always a subject-object complex; neither term can be known out of relation to the other, and consequently either is unknowable if and in so far as it is out of relation to the other. It also follows (4) that knowledge of self is strictly on a par with knowledge of objects, and the one is no more difficult to explain than the other. The doctrine that what we always perceive is only a state of our self is false; on the contrary we never perceive a state of our self except as the state is made an object by a similar process to that implied in cognition of the external world, and, like the latter, involving the categories. If we strictly confine ourselves to immediate experience without introducing anything more permanent, we do not even get solipsism but a relation without terms, an appearance without anything that appears or anyone that it appears to, nothing that can be an object of cognition at all; if we go beyond immediate experience, we have as much right to extend our knowledge on the object as on the subject side. (5) All judgment and the cognition expressed by it involve objectivity. This objectivity in the case of phenomenal events can only be interpreted on the assumption that the order of perceptions is irreversible, which at once involves necessary connexion. (6) The act of judging and the act by which we hold together diverse elements of experience in that unity which makes them an object of thought are identical, or at any rate strictly parallel. From this it should follow that judgment is essentially synthetic, never merely analytic; but Kant left it to others to make this deduction, and only used the parallelism between the two to guarantee the adequacy of his list of categories, as purporting to be deduced from the forms of judgment, not realising that a classification

¹ Or rather as events, since "consciousness of representations as representations" might possibly be taken already to imply consciousness of them as representations to some self, which is of course not the meaning.

² I have omitted detailed discussion of these last five points for considerations of space.

of the latter based on the analytic view of judgment must be affected by a view which (though it still nominally admitted judgment to be analytic) assimilated it to a synthetic process. (7)¹ The categories can only be applied as schematised in time (Kant sometimes says, space also).

These are the main results of the deduction; but unfortunately, as stated, they are marred and partially concealed by an unnecessary and faulty psychological theory. As Kant started with the analytic logic so he started with the atomistic psychology of his predecessors, and while he supplied the corrective to both, he never wholly shook off either. In the case of the atomistic psychology the results were specially harmful both for the form and the understanding of the deduction. Because of this psychology, instead of saying that consciousness of representations implied consciousness of the objective, and hence necessary connexion, he said that consciousness of representations as such could only be explained by a previous synthesis according to *a priori* categories, a defect which was partially but not wholly remedied in the second edition. The reason is that he started with the current view that what we are conscious of first is mere sensations, which we combine into an objective world by some process of inference. He soon came to see that consciousness, in so far as it involves cognition and is not mere animal sensibility, can never have for its object unconnected sensations and that our actual consciousness could not be explained by generation out of such sensations, but he retained in the unconscious the sensations, in their original unrelated form, and the process by which we proceed from sensations to objects, now in the form of a creative synthesis. This, besides encumbering us with a host of mythical entities and faculties, involves Kant in a hopeless contradiction.

For the theory makes the process of synthesis at once an event within and a generative condition of the phenomenal world. In regarding the process of synthesis as a process analogous to conscious cognition, or imaginative construction according to a rule, exercised on the manifold of sensations, Kant makes it an event of the psychical order in the phenomenal world. For he again and again insists that the empirical self with its sensations is as much a phenomenal object as anything in the physical world. But, if so, this process, apart from the fact that it now becomes the study

¹ In B 144 Kant speaks as though this were the most important part of the deduction, but, whatever its importance, the principles we have been discussing are clearly logically prior to it, and it may therefore be omitted without inconsequence in a discussion that does not claim completeness.

of psychology, not of epistemology, cannot be the presupposition and condition of the very possibility of that whole of which it is itself a part. Sensations are facts, among others, in the phenomenal world, and therefore cannot precede the existence of the latter, nor can the phenomenal world be held to have been created by a synthesis of a few of its constituent parts, *i.e.*, sensations. Kant is not able, like the realist, to reply that it is not the objective world but consciousness of the objective world by individuals that is to be explained in this way, for to him the objective, but phenomenal, world, which is the only world we know, cannot be supposed to exist prior to consciousness of it by individuals. A historical account of the genesis of human consciousness from animal sensibility is of course not intrinsically impossible, but such a genesis can never explain experience of the objective world, because it itself is only real as part of the objective world experienced.

If, on the other hand, the synthesis be taken as noumenal, then equal or worse difficulties arise. If it is noumenal, it is on Kant's own principles unknowable. We may deduce a *law* conditioning all experience from considerations of what is involved in the possibility of experience, but we cannot from the same premisses deduce a process prior to experience. For in the first place we could only reach the process by an argument showing that it is needed¹ causally to account for experience; but cause (as opposed to ground) is a category only applicable to phenomena, and cannot therefore be used to prove anything about noumena. Secondly, we can in any case only describe the process in terms of its results for experience. Any further specification by analogy to conscious processes of our mind is illegitimate. It is not a possible object of experience, and the very description of it as a synthesis is unjustifiable, for the process cannot be called a synthesis merely because the experience it gives rise to is complex, but only if we have reason to suppose that the complex experience originated by the putting together of several simpler elements. We have reason to do so as long as we regard the process as one by which, beginning with sensations, we acquire experience of objects, but not when we regard the process as the noumenal condition of all phenomena, including objects and sensations (as psychical events) alike. In fact it cannot even be called a process at all, for a process implies temporal change and causal connection, and these cannot be predicated of noumena.

¹ For the process is of the nature of an event hypothetically assumed to account for certain given facts, not a logical ground.

Even if it could be shown that there was such a process, we could only describe it in terms of its results which are elements in experience, and the supposed synthesis dwindles down to the palest of abstractions, akin to the scholastic 'faculties'. The doctrine has only value and meaning in so far as it asserts the results of the synthesis which are discovered by analysis of experience itself. But, if so, why try to go behind experience and not be content with the discovery that all human experience is of a certain form (*a priori* forms of space and time), and that without conforming to certain conditions (the categories) experience in this form is impossible? As an analysis of what is actually involved in all experience in time and space the *Critique* is invaluable, but it does not add to its value but only confuses the issue and obscures its results by the attempt to account for experience psychologically by a synthesis.

The doctrine of the synthesis, then, we have seen, acquires plausibility only because the synthesis is treated both as phenomenal and noumenal, as phenomenal when it is made an object of knowledge, as noumenal when it is made a condition of the existence of the phenomenal world; but if noumenal it cannot be the former, and if phenomenal it cannot be the latter, yet it must be both if the doctrine is to be retained. No doubt if Kant had taken the standpoint of subjective idealism and made the self and its states the one reality and the physical world a mental construction by the self out of its own sensations, then the synthesis could be at once a knowable event and a presupposition of the existence of the physical world, in the only sense in which it could be said to exist; but this certainly cannot be regarded as his view in any part of his "critical" period, for he is quite decisive as to the merely phenomenal character of the empirical self. That he sometimes approaches very close to that view in other respects I do not of course mean to deny, and in so far as he does so he assimilates the synthesis to the cognitive activities of the empirical self and to an event in the phenomenal world; in so far as he approaches the opposite 'phenomenalist' standpoint, the transcendental unity of apperception is viewed not as guaranteeing the existence of a separate unitary self but as a *de facto* unity in experience which may, for all we can prove, be the resultant of a great complexity of grounds, and the synthesis thus tends to become the wholly unknowable process which constitutes such a unity (as in the *Paralogisms*).

Another harmful result of Kant's psychological presuppositions is the distinction between form and content, content

being the material imparted by sensation and regarded as absolute diversity, and form the order contributed by the mind so as to assimilate the presentation to its own absolute unity. It was an unquestioned assumption of Kant, stated at the beginning of the second edition deduction, that all relation is contributed by the understanding. But as all sense-data of which we can be conscious contain a relational factor, and as experience was supposed to have begun from unrelated sensations, Kant concluded that there must have been a synthesis of these sensations, by which synthesis the relational factor was introduced into them. Content is thus conceived not as inseparable, though distinguishable, from form, but as an element which existed before form and to which form was subsequently added. This was one of the reasons for Kant's agnosticism, since, if we change our perceptions in receiving them, he argued, we are not entitled to say that they tell us the truth about what is outside us, for they have by the addition of subjective factors been already transformed beyond recognition.

But the distinction between form and content, when it is made absolute in this way, and content is viewed as actually, not only ideally, separable from form, involves Kant in two insuperable difficulties. In the first place, if all relation is imposed by the mind on an unrelated manifold, there is no way of accounting for the difference between the countless individual relations in the world, or even perhaps between the different categories. This difference can be ascribed neither to the transcendental unity of apperception, for that is the same throughout, nor to a difference in the content related, for in that case the content would be already related implicitly, and so all relation would not come from the mind. To take a physical analogy, the relation imposed by me is the same whether I add water or oil to fire, but the results are different. This difference can then only be accounted for by a difference between the properties of water and those of oil. But the property which differentiates them in regard to the effects of their union with fire can only be described as a relation between water (or oil) and fire, or even if it could be logically deduced from other properties of water (or oil) not explicitly involving a relation to fire, it would only be because those properties contained the same relation implicitly, otherwise there would be no ground in the premisses for the conclusion. Similarly, since the transcendental unity of apperception is always the same, the fact that, *e.g.*, A causes B, while C causes D, can only be explained as due to different properties in A and C, and the relation

of cause to B and D respectively must always be contained, either explicitly or implicitly, in these properties.

The second difficulty is that the manifold, since it can contain no relation before synthesis, must be absolute diversity. But the absolutely unrelated and diverse can have no meaning for us, it cannot be thought or perceived, and no judgment can be made about it. But if so it has for us no real existence. The situation is not remedied by relegating it to the unconscious, for we have seen that nothing in the phenomenal world can be absolutely unrelated, and if it is not in the phenomenal world it is no possible object of knowledge. Similarly, if the whole synthesis is placed outside the phenomenal world altogether and made prior even to the transcendental unity of apperception, then the difficulty is avoided; but, as we have seen, the process becomes wholly unknowable, so that we cannot call it a synthesis of the manifold of sense or even prove its occurrence. Even mere sensations are not absolutely unrelated, either for consciousness,¹ since they do not exist as sensations for the latter till differentiated out of the complex whole of feeling, and, when we have thus differentiated them, we have already recognised them as elements in objective reality with diverse relations, or as events in the physical world, since as such they are obviously related to the stimulus which caused them and the other parts of the organism. Kant, indeed, rises above this atomistic view when he speaks of that on which the synthesis is exercised as a manifold or as a "Gewühl" of sensations, but this cannot be reconciled with the doctrine that all relation is added by the mind to a pre-existing content. Both difficulties are smoothed over by the introduction of the imagination, for this faculty is used to account both for the individual relations in the world as given in perception and the connected character of sense-data prior to conception; but no solution can be reached in this way, for the imagination, if its activities are to be known at all, must be regarded as working on a number of unrelated sensations according to these very *a priori* principles which the understanding afterwards recognises as such,² abstracts, and consciously uses, so it only throws the difficulties further back. The one possible solution is to regard form and content as distinguishable but inseparable elements in all human experience, and not divide them by the impassable gulf between absolute unity and absolute diversity, and to make not mere analytic identity

¹ Besides most, if not all, sensations have the characteristic of extensity and so are themselves complex.

² v. B 152, 162; A 118, 123.

but unity-in-diversity the type of thought and the ideal of knowledge, so that while on the one side the content ceases to be mere diversity, the mind likewise ceases to be mere unity.

But this faulty psychology must not be allowed to obscure the real value of the deduction, which I hope I have sufficiently emphasised. It is impossible of course to undertake here to defend against all objections what I hold to be the valid results of the deduction as enumerated above; all I can do is to meet one or two such objections; nor of course can I discuss criticisms directed against idealism in general, and consequently against that variety of idealism involved in the transcendental deduction (although many of the conclusions of the latter deduction would be tenable in conjunction with a realist philosophy).

It has been objected that the reasoning of the deduction involves a vicious circle because consciousness of objects is sometimes deduced from transcendental unity of apperception, and sometimes, *vice versa*, the latter is deduced from the former. But, when two facts (A and B) imply each other, it is quite legitimate to argue first from A to B and then from B to A; indeed this is the only way of proving that each implies the other. Of course this does not establish the actuality of either unless one or both have been independently proved, but this is the case with transcendental unity of apperception and consciousness of objects, for both, as we have tried to show, are proved by the deduction to be involved in all cognition. At first sight it might seem as though it were impossible to prove that the manifold, depending as it does on things-in-themselves, must be capable of combination according to the categories; but this presents no real difficulty, for if it were not capable of being so combined, it could not enter into the phenomenal world, it could not be even a chaotic manifold for us. No manifold incapable of such combination could be part of our world, and the fact that knowledge is possible proves that this combination of the manifold is possible. No doubt this argument is in a sense empirical, since it rests on the empirical fact that knowledge is possible; but after all what stronger proof can be given of any principle than to show that unless it is true nothing can be known?

It has also been said that categories, like cause, pre-suppose and cannot constitute objective succession, for any process which appeals to these categories must be guided by experience of what is already known to have objective existence; thus we cannot determine that A is the cause of B without prior empirical knowledge of the objective phenomena occurring

before B, hence our decision that a particular event is objective cannot be due to the discovery that the event in question is necessarily determined. Or, to put it more generally, we are said by Kant to know that a given event is objective when we know that it possesses systematic unity according to the categories; but we cannot know that it possesses systematic unity in general, it is urged, till we know the particular kind of systematic unity it has, which, as Kant admits, is impossible without experience, and experience of it as already objective. To this we may reply that the deduction proves not that in order to view any particular representation as a representation of an object we must establish its conformity to the categories, but that all cognition involves the consciousness, faint or clear, of that which is known as a member of an objective order, and that this objectivity, in its turn, when analysed, implies necessary connexion. We do not know an event to be objective because we know it to possess systematic unity according to the categories, but we know it to possess systematic unity according to the categories because we know it to be objective, and if we do not know it as objective we cannot know it at all. The question as to what is the particular character of the systematic unity it possesses only arises after we have cognised it as objective.

This account does not claim to be in conformity with all passages in the deduction; it seeks to represent rather the logical results of the latter than the precise expression of them at every stage or the fluctuations of opinion traceable in the text. Since the work is not of a unitary character, no interpretation of the line of argument can be reconcilable with all passages, especially if it adds criticism to interpretation and attempts to disengage the material from the immaterial, the tenable from the untenable as given therein. The conclusion we should be inclined to make provisionally is that the main results of the deduction are valid, but that they must be expressed in logical, not psychological, terms, and that the assumption of an actual synthesis by the mind is harmful rather than beneficial to the rest of the argument and itself untenable. Thus the deduction achieved its professed object, the logical justification of the fundamental presuppositions of science, and while doing so it incidentally revolutionised the philosophical problem of the self, undermined the basis of the old analytic logic, founded a new epistemology characterised by a method based on the coherence view of truth, and suggested a new idealism of a far better grounded and more fruitful type than any that had preceded it,—results, any one of which, even taken singly, is obviously of paramount importance for philosophy.

V.—CRITICAL NOTICES.

Aristotle on Coming-to-be and Passing-away. A Revised Text with Introduction and Commentary. By H. H. JOACHIM. Oxford, Clarendon Press, 1922. Pp. xxxviii, 303.

The Works of Aristotle translated into English. De Coelo, De Generatione et Corruptione. Oxford, Clarendon Press, 1922. [No pagination.]

If we exclude the chapters of the *Metaphysics* which treat of the divine First Mover and the lesser incorporeal "movers" of the planetary "spheres," no part of the philosophy of Aristotle has had so long and so fateful an influence on thought as the general theory of "nature" set forth in the series of cosmological discussions which begins with the *Physics* and ends with the *Meteorologica*. There is also none for which less has been done by modern scholarship since the great revival of mechanical science in the seventeenth century. In recent times, since the publication of Bekker's text of Aristotle, so far as I know, nothing has been done for the text or the exegesis of the *de Coelo* or the *de Generatione* in a systematic way except the very inadequate editions of Prantl, and the same scholar's later plain texts in the Teubner series. As every one who has had to work with Prantl's texts and notes is aware, his achievement is wholly unsatisfactory. His text is not only vitiated by unsound theories of the worth of our various manuscripts, but further depraved by not a few arbitrary emendations arising from grave misconceptions of his author's meaning. The Clarendon Press has then rendered a great service to all students of the history of science by publishing Professor Joachim's revised text with full commentary of the *de Generatione* and his English version, as well as an English rendering of the *de Coelo* by Mr. J. L. Stocks. It is only to be hoped that we may in the future be laid under a still further obligation by the appearance of versions of the *Physics* and *Meteorologica* and properly revised texts of the former and the *de Coelo*. Meanwhile the Press is to be very heartily congratulated on what it has already done to make what Aristotle himself probably regarded as the most important of his contributions to science properly accessible to the modern student.

In dealing with the works under consideration it will be convenient, in spite of the *hysteron proteron* involved, to say something first of Mr. Joachim's share of the task. The translation of the *de Generatione* I propose to dismiss in a few words. It is an admirably careful and close rendering of the author's revised text; and as the

explanation of the principles on which the text has been constructed and the exegesis of it are fully given in the *Commentary*, the translation itself has required very little in the way of explanatory notes. I may therefore confine my remarks almost exclusively to the critical text and the *Introduction* and *Commentary* which accompany it.

I should like to express my admiration for the thoroughness and sound judgment with which all the varied parts of the very laborious task have been executed. The constitution of the text has required a thorough re-examination of the far from impeccable *apparatus criticus* of Bekker, a careful collation of the important Vienna MS., known as J, which emerges as an authority at least as important as the once over-rated Paris E, and a thorough study of the commentary of Philoponus. Valuable results have also been obtained by use of the fifteenth-century Latin version of Andreas Asulanus. The general result, as in the case of recent textual work on Plato, is to establish the impossibility of basing the text on any single supposed *codex optimus*, and more particularly to demolish the superstitious deference paid by Prantl and others to the often demonstrably erroneous readings of E. It also results that, if judicious use is made of MSS. and *testimonia*, there is very little room indeed for conjectural emendation. Prantl's rather numerous conjectural alterations of the text turn out on serious scrutiny, with one or two exceptions, to be no better than depravations. This could in any case have been shown about most of them even on the imperfect information afforded by Prantl's own very imperfect *apparatus*, but it is satisfactory to have the conclusion one had reached tentatively in this way converted into a certainty by Mr. Joachim's elaborate critical work. Joachim seems to me also to exhibit scholarship and judgment of a high quality in choosing between variants where the external evidence is fairly divided. I wish, however, that he had fairly faced the question whether all our MSS. may not be descended, as seems to be the case with those of Plato, from some early text which was already provided with variants. If that should be so, it would follow—having regard to the way in which ancient books were “published”—that in many cases, for all we know to the contrary, alternative texts may both sometimes go back to the author himself, like the alternative texts of a modern book which has been reissued in the writer's life-time. In the *de Generatione*, as Mr. Joachim's *apparatus* sufficiently proves, there is very little room for merely conjectural “emendation,” but two places may be mentioned where the true text seems to me to have been happily restored. At 322 a 28, 30, 31 the substitution of αἰλός, αἰλοί for the unmeaning ἄνλος, ἄνλοι of MS. J. and previous editors restores a proper meaning to what is otherwise nonsense, and is supported by Aristotle's habitual employment of the αἰλός as a typical example of an ὄργανον, itself a reminiscence of Platonic passages. (I should say, however, that I do not feel quite sure that the additional clause given in J at l. 29 ὁμοίως δὲ καὶ ἄλλο τι οὖν ὄργανον comes from a reader who understood the pas-

sage correctly. Obviously the writer saw that the letters *αυλος* were to be read *αἰλός*, but, in view of the reference to *τροφή* and *αἵξις* which has gone immediately before, it may be that he supposed the word *αἰλός* here to mean one of the "ducts" to which Aristotle gives the name in his biological writings, and meant to observe that what is said about *τροφή* and *αἵξις* would apply to any other "organ" as much as to one of these). The second place is 333 b 15, where, in the reference to Empedocles' *τύχη δ' ἐπὶ τοῖς ὀνομάζεται ἀνθρώποισι*, the *τοῖς* is restored against the *τούτοις* of most MSS. by an appeal to the impossible *τὸ ἴσον* of J supported by the version of Asulanus. The greatest service to the constitution of the text, however, is that which has been silently effected on every page by systematic and careful revision of the erratic punctuation of Bekker and other editors. It is hardly too much to say that Joachim has in this unobtrusive way done for the exegesis of the *de Generatione* what Bywater did for that of the *Ethics*. If Mr. Joachim, as a critic, has a weakness, it is perhaps that of being just a little too ready to assume a small *lacuna* in the text on not wholly convincing grounds. In one or two cases, I should incline to say, it might have been more judicious to express the suspicion of a *lacuna* at the foot of the page without actually printing marks of omission in the body of the text.

The *Introduction* and *Commentary* will be found uniformly on a very high level of excellence. Mr. Joachim is thoroughly at home in Aristotle's cosmological writings, he has drawn very largely on the work of Zabarella, who wrote while the general standard of acquaintance with Aristotelian natural science was much higher than it has been among the *docti* since the time of Cartesianism, and he never shirks a difficulty.

I had made a number of notes on special places where it seemed to me doubtful whether Mr. Joachim was wholly right about text or interpretation. Space forbids me to mention more than one or two of these passages, but I may be allowed to refer to a few of them, always with the qualification that after all it is very likely that Mr. Joachim is right and I am wrong.

Page 66 (n. on p. 341 b 1). Since vegetables grow out of the ground, I think Mr. Joachim's remarks about Aristotle's ascription to Anaxagoras of the view that earth is a *πανσπερμία* hardly justified by the reference to Anaxag., Fr. 4; the *σπέρματα* of the things which come out of the soil must be in the soil.

Page 69 (n. on 315 a, 22). It would only have been fair to Empedocles to remark here that the suggestion that the "one" or "sphere" of Empedocles is the *ἕλη* from which "fire and earth" are generated, is an "illation" of Aristotle's own making, and wholly without foundation in Empedocles himself.

Page 73 (p. 315 b, 26), "because the primary reals are indivisible magnitudes" should surely rather be, "on the understanding that the primary reals, etc."

Page 74 (last paragraph). I do not quite see why Mr. Joachim

makes the difficulty he does about the atomistic view of secondary qualities. Surely a τροπή among atoms might make a difference both as to the πόροι in an atomic complex and to the ease with which its members would enter into the πόροι of our sense-organs?

Page 116 (second paragraph). Is there not a contradiction here? The argument as stated by Joachim does *not* prove that a point may not be "in" a κινήτων *per accidens*. (Cf. the end of the preceding paragraph.) The arguments of the *Physics* require a further premiss, which J. overlooks, *viz.*, that nothing but a volume can be a constituent of a volume, and this proposition may quite intelligibly be denied.

Page 116-117 (320 b, 10-11). Are Zabarella and J. right about the sense here? I think that we have again to take account of an implied but not expressed premiss, *viz.*, that the ἔλη of which Aristotle is speaking is *ex hypothesi ἀμεγέθης*, 320 b, 21. May not the clause σκληρόν—γίνεται, which J. brackets, or proposes alternatively to transpose, be defended where it stands? When the smith makes a semi-liquid mass of metal into a sword-blade, or the brick-maker makes clay into bricks, you have a case where something is made hard ὑπ' ἐτελεχείας, but not by the action of an ὁμοειδές.

324 a, 17. May not the words τὸν λίθον in H be genuine? One really wants a subject for θερμαίνεσθαι καὶ ψύχεσθαι to balance τὸν ἄνθρωπον, and an exposed "stone" or rock is a very good example of something which is very hot in the sun and very cold at night.

Page 158 (n. on 324 b, 27-32). The difficulty raised about Empedocles' theory of vision seems to me probably imaginary. As the *Timaeus*, which seems to reproduce E.'s theory pretty closely, shows, the general doctrine is that the φῶς going out from the eye effects a junction with φῶς outside, whether that of the sun, or that of any other source of light. Colours are explained as actual flames emitted by bodies, and in the case of colour-vision, according to Timaeus, the symphysis of the two flames may involve an actual entrance of the external flame into the cornea. Probably then the doctrine was that the symphysis may occur at the surface of the eye itself, though, as we see from the account of mirrors in the same dialogue, this need not be the case. Aristotle himself, as the word εἰσιόντας shows, is thinking of the "effluences" as actually penetrating into the eye, as Timaeus says they do when we see a brilliant light which makes our eyes water.

353 a, 17. ὥστε μὴ μεταβάλλειν. ὥστε is here restrictive, "but with the qualification that" rather than "so that" (as in the translation). I mention this because it is the solitary case of a neglect of an idiom I have found in Mr. Joachim's work.

353 b, 1. περὶ γὰρ αὔξει τὸ πῦρ. Is πῦρ nominative or accusative? J. takes it as accusative, understanding Ἐμπεδοκλῆς as the subject. Since Aristotle goes on at once to quote from E. αὔξει δὲ χθὼν μὲν σφετερόν δέμας, this strikes me as an unlikely view. I should suppose πῦρ to be nominative and αὔξει in-

transitive. Perhaps Empedocles wrote, after the line quoted by Aristotle, something like *καὶ περὶ πῦρ ἀρίδην ἀέζεται ὑδατὶ θ' ὕδωρ*, and *αὔξει* represents *ἀέζεται*.

333 b, 12. For once J.'s exegetical note strangely misses the real point. *φιλία*, says Aristotle, is made by Empedocles the explanation of combination and *νείκος* of separation. But how does he explain the further fact that the "elements" will only "combine" in definite proportions? The remarks quoted in J.'s note from the *Metaphysics* have no bearing on this problem.

336 a, 2 *λίαν ὀργανικός*. I think J. misconceives the sense here. He renders "they invest the forces they assign to the simple bodies with too instrumental a character". In the *Commentary* the explanation given is "they treat mere natural forces as auxiliary to a purpose" (as, of course, a mere "naturalist" has no right to do). But surely the true rendering is "and the forces to which they ascribe the production of things are too much of the nature of mere instruments". I.e., by leaving out considerations of the formal and final causes, they make what are mere instruments (efficient causes) into the true cause. It is not meant, as J.'s note suggests, that mere "natural forces" are really something inferior to "instruments". They are "instruments," but the "naturalist" treats them as though they were something more. Thus the criticism is equivalent to the familiar one of Socrates in the *Phaedo*.

325 b, 23. I see no need to excise the words *τῶν—ἑκαστον*. Leucippus had no objection to an *infinitum actu* and may quite well have held that every atom is an irregular figure with an infinite plurality of faces. The two figures spoken of as Platonic, in any case, are not, as J. says, the two "fundamental triangles" of the *Timaeus*, but the equilateral triangle and the square, the two actual faces of the molecules of the "four bodies" according to *Timaeus*.

325 b, 30. *δύο τρόποι ἂν εἴεν*. Joachim for grammatical reasons brackets the words. But does not the *τρόποις* of J suggest that they should be retained with the correction of *τρόποι* to *τρόπους*?

326 b, 7. *διὰ τῆς τῶν πόρων κινήσεως*. Prantl's deprecation of *κινήσεως* into *τρήσεως* is rightly rejected. But do we not still need to read *διὰ τῆς <διὰ> τῶν π.*?

328 a, 15 (critical note). *Λυγκεῖ*. *Η Λυγγεῖ*. In the *Commentary* the reading of H is taken as meant for *λυγκί* (dative of *λύγξ*, *λυγκός*). This is an oversight. The accent in H shows that *λυγγεῖ* is a mere false spelling for *Λυγκεῖ*.

328 b, 32. *τὰ καλούμενα στοιχεῖα τῶν σωμάτων*. In spite of the combined authority of Zabarella and Joachim, I cannot help believing that *τῶν σωμάτων* is a partitive genitive, and that the words mean "the bodies commonly called *στοιχεῖα*," not "the so-called *στοιχεῖα* of bodies". Aristotle expresses himself thus precisely because the point he is going to make is that *no* body whatever is a *στοιχείον*; the order of words, if my "construe" is correct, is "idiomatic" and regular.

330 b, 16. *Πλάτων ἐν ταῖς διαίρεσιν*. I do not feel satisfied with

Mr. Joachim's ingenious guess that the *διαίρεσεις* ascribed to Plato may mean the section of the *Timaeus* more commonly known as the *ψυχογονία*. I quite agree with the argument that the allusion here *may* be to something in the dialogues. But I would submit that equally it may not. And further, if a passage in the dialogues is meant, it is not likely to be the *ψυχογονία*. That would have been much more likely to be known from the first by its later name, *ψυχογονία*. The only excuse for calling it *διαίρεσεις* at all would be that the account of the great cosmic "harmony" given there begins with the words *ἤρχετο δὲ διαίρειν ὧδε*. A passage in the dialogues which could be actually known as the "divisions" would surely be one in which the making of divisions was itself the principal theme. If the reference is to the dialogues at all, I should think the place meant to be rather the pages of the *Philebus* where τὰ νῦν ὄντα are divided into *ἄπειρον*, *πέρας* and *τὸ μικτόν*, to which Aristotle actually *seems* to allude in the words *τὸ γὰρ μίγμα ποιῶ*.

336 b, 5. *ἀνίσουν—κίνησις*. J. can hardly be right in supposing any reference to a variable acceleration of the sun in the ecliptic. The whole point of the famous Eudoxian system of "spheres" was that the apparently irregular paths of the "planets" were to be explained as resultants of perfectly regular rotations. The movement of the sun in the *λοξὸς κύκλος*, being a rotation of one of the sun's "spheres," must be taken to be completely uniform (*ὁμαλός*). I take it all that is meant is that, since the *distance* of the sun from the earth is variable, the heating and lighting effects of the sun on any part of the earth vary correspondingly. The *ἀνωμαλία* which exercised the Greek mind, the inequality of the four seasons, is left out of account throughout the passage, since Aristotle's object is merely to show why there is a cycle of seasons at all. (In the system of Eudoxus, this *ἀνωμαλία* is accounted for by giving the sun a third sphere.) The curious thing—Mr. Joachim does not note the point—is that Aristotle's statements seem to require that the sun shall have his perigee in *our* summer (*φαίνεται δὲ καὶ κατὰ τὴν αἴσθησιν ὁμολογούμενα τοῖς παρ' ἡμῶν λόγοις*), and this, of course, is not the fact. It seems to be taken for granted that the sun is not only with us for more hours in the day, but is actually nearer to us in summer than in winter. With all Aristotle's insistence that the southern pole is the true "up," he has not realised the simple point that the winter of the northern hemisphere must be the summer of the southern, and consequently that for the solar perigee to fall in someone's summer, it must also fall in someone's winter.

Page 279 (338 b, 3). Mr. Joachim almost seems to suggest that the *λοξότης* of the ecliptic is a direct *consequence* of the revolution of the *ἀπλανές*. In the absence of all evidence, I can hardly believe that Aristotle was capable of so extraordinary a notion, and I do not think Mr. Joachim really means to attribute it to him, but he has expressed himself in a way which lends itself to to such an interpretation.

I proceed now to speak of Mr. Stocks's work in the *de Coelo*.

It is a little unfortunate that Mr. Stocks, having to construct a working text for himself, has been obliged to do the constructing in his footnotes. One would be able to appreciate both the text and the rendering better if the text were printed continuously and had not to be inferred from Bekker or Prantl as corrected by the notes to Mr. Stocks's version. As far as I can judge without any personal knowledge of the MSS. of the *de Coelo*, Mr. Stocks's text is based on thoroughly sound principles; it is certainly far superior to both Bekker and Prantl. Like Prof. Joachim, Mr. Stocks has wisely placed no undue reliance on E, and like him has rightly rejected most of Prantl's "emendations". He, too, has paid great attention to the due punctuation, going perhaps almost unnecessarily far in his anxiety to make the stopping of each sentence a visible guide to its logical analysis. But even if this care about punctuation can be overdone, still the overdoing of it is a good fault, and in the main Mr. Stocks's new stopping is of very great service for the understanding of the text. I could wish that so many notes had not been devoted merely to the correction of printers' errors in Prantl's Teubner text. Even Mr. Stocks has not quite got them all, and not more than one or two would ever be supposed to be anything but mere slips of the press. As Prantl's text with translation and commentary is much more correctly printed, it is presumably Messrs. Teubner's proof-reader, not poor Prantl, who should shoulder the blame.

In the manner adopted for his rendering Mr. Stocks differs a little from Prof. Joachim. The latter has aimed at as close a rendering of the precise words of the text as our language permits of. Mr. Stocks inclines more to paraphrase and the re-wording of passages to make them more directly intelligible without reference to the original. It is a fair subject for discussion which style is more suited to a translation of Aristotle worthy of the University of Oxford. On the one side it might be urged that such a version ought to replace the original for English-speaking people at large, and ought, therefore, never to require reference back to the Greek to explain its exact meaning, and that the style adopted, therefore, necessarily demands a freeish handling of the original. On the other, free handling is bound to lead to subtle displacements of emphasis and to the supplementation of curt statements in a way which may often be doubtfully true to the author's thought. On the whole I think I should myself opt for Prof. Joachim's method, but "there is much to be said on both sides". The translation of the *de Coelo*, with the corrected text indicated by the notes, is certainly a very valuable addition to the *subsidia* of the English student of Aristotle. Unfortunately there are just one or two really bad slips in Mr. Stocks's version which, I think, should be corrected by means of a *corrigenda*-slip before the Oxford Aristotle can be regarded as definitively complete.

I proceed to add a few notes on points of detail:—

268 a, 16. ἀποδιδόμεν is not well rendered by "we use the

terms". Rather "we distribute appellations in the same fashion," i.e., we do not use a plural to stand for less than three things, and we say "both" of two things, but "all" of more than two. *Ibid.* a, 20. τὰ πάντα is not "every," but "all the"?

269 a, 28, n. It might have been worth while to point out that Aristotle's anxiety to find some body with a "natural" circular motion is a piece of anti-Platonic polemic. Plato had made Timaeus say that all bodies, left to themselves, would move in straight lines; hence the circular revolutions in the heavens are not due to a purely "natural" but to an intelligent cause, νοῦς "persuading" ἀνάγκη. Aristotle wishes to get rid of the "transcendent" action of νοῦς. More precisely, as Burnet has put it, Plato is maintaining that there is a "cause" of the planetary orbits; Aristotle wants to take these orbits as so much "ultimate fact".

272 a, 22. "moving past the finite line B". παρά means, of course, "parallel to".

275 b, 7-11, n. Surely the argument here is not concerned, as the translator's note would suggest, with Platonic εἶδη? The main object of attack is the old Ionian doctrine of a something which "encompasses" the world or worlds. It is a secondary point that if anyone suggested that there is such a body but that it is a νοητὸν σῶμα, and consequently not directly perceptible,¹ you could still refute him.

276 a, 21. τῶν ἀορίστως κειμένων. This means "indeterminate in position," not "in extent". Cf. the old Pythagorean fancy of the 183 κόρυμβοι arranged in the form of an equilateral triangle.

279 b, 15. The note here seems to show that Aristotle's meaning has not been fully taken in. The "alternation" of which Aristotle speaks is strictly, as he says, an alternation between two directions of φθορά. Heraclitus holds that "things" may be destroyed either by conversion into fire or by conversion into water. So Empedocles holds that the "world" has a "double passing away". It is destroyed when φιλία has wrought all the "roots" into one compact sphere, and also when νεῖκος has sorted the "roots" into four disconnected heaps. The correction of a remark of Burnet in the same note is a little uncalled for. Strictly speaking, Mr. Stocks is right, but Burnet's oversight leads to no false consequences, since, of course, if the universe is perishable, the "first heaven" must be perishable too.

258 b, *passim*. I wonder whether it would not be possible to explain the curious tangle in Aristotle's statements about the true "up and down" and "right and left" more simply than Sir T. L. Heath does, and yet without, like Proclus, whom Mr. Stocks half wishes to follow, getting rid of the plain grammatical sense of ἐπὶ δεξιά. I suggest that the Aristotelian view comes simply to this: (a) If one wishes to keep the "diurnal motion" in view, one has, of course, to face S. (if one is in our hemisphere). The sun

¹ The ἄπειρον of Anaximander, if it really existed, would, on Aristotle's principles, have to be such a νοητὸν σῶμα.

is highest when he is in the S. (at noon). This is, I think, the simple reason why the S. Pole is said by Aristotle to be "really" *ἀνω*. (b) Further, if you do face the noonday sun, you see the sun apparently moving from E. to W., and this is movement *ἐπὶ δεξιὰ* "towards the right hand". Of course, therefore, the movement from W. to E. which precedes this movement and has the same sense is also *ἐπὶ δεξιὰ*, and this fits in with Aristotle's fancy that "where the planets (*not* the "constellations," of course) rise" is the "natural right hand" of the world. When you remember that a man in the southern hemisphere, the "natural *ἀνω*" of the earth, to see the "diurnal movement" would need to face N. and that to *him* the revolution would appear *ἐπ' ἀριστερά*, there is a fatal incoherency about the theory, but I imagine Aristotle simply forgot this.¹ The case of Plato's reference to "left-hand" and "right-hand" seems to me different. In the *Timaeus* the daily revolution is said to be *ἐπὶ δεξιὰ*, but this is regarded by Timaeus simply as a matter of nomenclature. He does not believe that the *οὐρανός* has a real "up and down" or "right and left". Hence with him the sense of the diurnal revolution is called "right-handed" *honoris causa*. In the *Laws* and *Epinomis* the language is reversed. It is the "annual motion" which is there called *ἐπὶ δεξιὰ*, the motion of the *ἀπλανές* being called in the *Epinomis*, to the great scandal of Proclus, *ἐπ' ἀριστερά*. This agrees with the curt conventional statement in the *Laws* that *ἐπὶ δεξιὰ* is to be understood to mean "towards the sunrise," *πρὸς ἥω*. It is just because Plato is clear on the purely conventional character of the phrases that he can make Timaeus employ them as the Pythagoreans did, and yet himself prefer to invert this usage.

287 a 18. *τὴν παράλλαξιν τῶν γωνιῶν*, "the projection at the corners". Mr. Stocks can hardly be offering this as a version, and as a paraphrase it is not happy. Tr. "the shifting of the angular points". If a polyhedron is made to rotate continuously, its angular points will constantly be occupying positions which were not occupied by angular points before, and leaving vacant those which were so occupied.

289 a 25. The important word *αὐτά* is missed in the translation.—Tr. "and since they (the melting balls) are *themselves* ignited ('fired') is an unfortunate word since we talk of 'firing' an arrow

¹ I.e., what is overlooked is that to the watcher in our hemisphere, the daily movement appears to proceed *ἐπὶ δεξιὰ*, but the point at which it begins, the point of sunrise, is at *his* left, though according to Aristotle this is the true "right". To the watcher in the S. hemisphere the sun does appear to rise at his right hand, but the movement to proceed *ἐπ' ἀριστερά*. I am afraid the solution of the difficulty may be that Aristotle simply forgot that both conditions, that the "real" right shall be to the observer's right and that the sense of the rotation shall be from right through left to right cannot be satisfied at once. I shall have to call attention to at least as grave an inconsistency about "up" and "down" later on.

from a bow or a pellet from a catapult), the surrounding air must be similarly affected."

293 a 6 n. I do not understand why the "sphere" which actually "carries" a planet is spoken of as the "outermost". It was, of course, the "innermost," the sphere with the least radius, as is carefully explained by Simplicius in his very important dissertation on this very passage. It is the "outer" spheres, those of greater radius, which are ἀνίστροι.¹

293 a 19. Does not ὅσοι here = <ἐκείνων> ὅσοι? Most persons who regard the οὐρανός as finite place the earth at the centre. Those who do not regard it as finite, of course, could not ascribe a centre to it at all. And it would be hard to prove that *all* who regard the οὐρανός as finite put the earth at its centre. *E.g.* the later *Pythagoreans* certainly regard the οὐρανός as finite, but they, as Aristotle says, do not place the earth "at the centre".

293 b 30 n. The otherwise interesting note about the quotation from the *Timaeus* ignores the important point that the true reading at *Tim.* 40 a is ἰλλομένην τὴν περὶ κτλ., so that Aristotle is certainly right in his two statements that *Timaeus* ascribes a motion to the earth and that this motion is not "round" but "at" the centre. *I.e.*, it is some kind of periodic "excursion about" the centre.

295 b 19. ἀλλὰ μὴν οὐδ' ἀναγκαῖον. "But this does not follow." The translation seems to obscure the point intended by Aristotle. Understand οὐδ' ἀναγκαῖον (μένειν) and render "what is more, it is not necessary". *I.e.*, it is not necessary that whatever is put at the centre should *stay* there. For earth does not *simply* stay there; it can be violently detached from that position, and then it *moves*, "naturally," back again. This is, no doubt, intended by the translator, but he has not made his meaning clear. It *would* "follow" on the theory of ἰσορροπία that the earth, being at the centre, "stays" there. But by οὐκ ἀναγκαῖον Aristotle means not "this does not follow," but this—staying at the centre—is in fact no more an ἀναγκαῖον than, on that theory, it could be an ἴδιον γῆς. Earth, as a fact, may happen to be "out" of its "proper place".

296 a 17. The translation of the sentence ὥσπερ—γινόμενον seems to me barely intelligible. Tr. "for a body would pass from a less to a greater place by rarefaction just as from a greater to a less by condensation".

296 a 13. τοῦτο γὰρ—ὁμοιότης, "the only *possible* result on the lines of the indifference theory". This is a bad misrendering. Tr. "this is *all that need happen* on the lines of, etc.". Aristotle means to say that it would follow from the ἰσορροπία theory that if there were "fire" at the centre, the fire would expand uniformly to the circumference. *So far* the theory gives a correct result, but it is not a satisfactory theory, since there are other "appearances" which should be deducible from a true theory but cannot be deduced from

¹ Perhaps Mr. Stocks is simply reproducing the account given in Sir T. L. Heath's *Aristarchus*, in which the "spheres" are taken in the reverse order to that followed by Greek writers. Hence Heath's "last" sphere is always the outermost.

that of *ισοροπία*. The *τοῦτο* which is said to follow from the theory is the result that *all* the fire would *not* move "to one point of the circumference". Mr. Stocks credits Aristotle with the absurd assertion that it would follow from the theory that all the fire *would* move to one and the same point. Capricious as some of Aristotle's objections to rival theorists are, it is too bad to saddle him with such a monstrous inference.

296 b 20. Here and in the other places where Aristotle uses the expression *πρὸς ὁμοίας γωνίας* it should be borne in mind that Proclus tells us that *ὁμοίαι γωνίαι* was the *older* expression for *ἴσαι γωνίαι* (*Comment. in Euclid*, ed. Fiedlein, 251, 1). This makes Mr. Stocks's note, and the remarks of Simplicius quoted there, superfluous as well as anachronistic.

297 a 5 n. May I suggest that the *σχήματα* in this passage perhaps mean the appearances of *constellations* according as they are seen rising, overhead, or setting, and that the sense is simply that all such apparent variations are sufficiently accounted for by the movements of the *ἀπλανές*. There is no need to assume a movement of the earth to explain them.

There is an unfortunate oversight in the note at the end of Book II., where various estimates of the earth's circumference are given in geographical miles. The figures are taken from Prantl, as Mr. Stocks says, but he has forgotten that Prantl's German "geographical mile," as Prantl says, is one of 22,841.8 feet, whereas *our* "geographical" mile is one of 6,080 feet; consequently for an English reader all the figures are totally misleading.

298 a 24-25. "We have already discussed the first heaven . . . and the moving stars within it." The "moving stars," in Aristotle's mouth, should mean the planets, but they, of course, are not all that is meant. Tr. "the stars which move with it".

298 b 18. The argument would be made clearer if it were explained that Aristotle is probably thinking of Plato's "pyramids". Four points not all co-planar, determine a pyramid. If you now take a fifth point outside the pyramid so determined, you have determined a second solid which can be divided into two pyramids, the original one and a second which has a face common with it. Both, being "bodies," will have weight, and the weight of the two pyramids will be greater than that of either alone. This is what Aristotle has really proved; he *thinks* he has shown that the excess in weight must be the weight of the *fifth point*. The fallacy pervades his polemic against the *Timaeus*, and is therefore worth pointing out.

302 a 13. *σκεπτέον ποῖα τῶν τοιούτων σωμάτων ἐστὶ τὰ στοιχεῖα*. I think Simplicius and Mr. Stocks make a mistake about the grammar here. Since the *στοιχεῖα* of Aristotle are not bodies at all, we must not take *τῶν τοιούτων* with *σωμάτων*, but understand it with reference to the *ἐννέπαρχοντα* just mentioned. Tr. "we must ask which of these *ἐννέπαρχοντα* are the *στοιχεῖα* of bodies". This leads up to the answer, the hot and the cold, the moist and the dry.

302 a 26. οὐ γὰρ εἴ ἐσται σὰρξ ἢ ὀστούν. Not, as Mr Stocks takes the words, "if it"—the supposed στοιχείον—"were flesh or bone," but "if flesh or bone exists". The argument is, as Prantl said, "the στοιχεῖα potentially ἐννύσκει in flesh and bone but not flesh and bone in them, and this would be equally the case if we supposed that there are not many στοιχεῖα but only one στοιχείον. It would still be true that this στοιχείον ἐννύσκει δυνάμει in flesh, but false that flesh ἐννύσκει δυνάμει in it."

303 a 15. ὥς οὖσαν αὐτῶν τὴν φύσιν οἶον πανσπερμίαν πάντων τῶν στοιχείων. Mr. Stocks writes, "assuming that the atomic substance was a sort of master-seed for each and every element". The rendering seems to me to ignore the αὐτῶν, to pre-suppose a false construction, and apparently to put a wrong sense on the word πανσπερμία. Tr. "as if they (*viz.*, air and water) were a mixture of all the atomic στοιχεῖα". τὴν φύσιν αὐτῶν is little more than a periphrasis for "they"; τῶν στοιχείων depends on πανσπερμίαν, and πανσπερμία does not mean the "master-seeds" (whatever these may be), but a medley of seeds. Even if the word could mean a "master-seed," there could be no such "master-seed" in the atomism of Leucippus and Democritus, the doctrine under discussion.

305 a 17. I agree with Mr. Stocks that the γεννώμενον of the MSS. is impossible, but what has it replaced? Q: 1. γεννωμένων, "while they are being evolved"?

305 b 13 "as is obvious in *any* case of transformation". Surely the true translation is, "that much is observable in *the* actual process of transformation, (*viz.*, the transformation of water into air of which Aristotle is speaking)".

307 b 20 (and elsewhere) when πάθη is conjoined with ἔργα and δυνάμεις, does not the word mean specifically "passive" qualities rather than "properties" generally?

308 b 31. καίπερ ὄντες ἀρχαῖοτεροι τῆς νῦν ἡλικίας. Surely ἀρχαῖος had here the sense of "old-fashioned," "primitive". Aristotle is more likely to remind us that the theories of, *e.g.*, Leucippus are "crude" from the standpoint of our own day than that Leucippus is not now alive.

309 b 25. I congratulate Mr. Stocks on having made sense of this passage by restoring αὐτὸ for αὐτῷ in the phrase ὥσπερ οὐκ αὐτὸ χόραν τι ἀ οὖσαν.

310 b, 14-15. Mr. Stocks's interesting note amounts to championing Simplicius against Alexander in the interpretation of this difficult passage. My difficulty is that though S.'s view of the meaning, *viz.*, that γῆ is said to be οἶον εἶδος of water is easier to fit in with the special context here than Alexander's, that water is called οἶον εἶδος of γῆ, I do not see how to get the former out of Aristotle's words. ἀεὶ, we are told, τὸ ἀνώτερον πρὸς τὸ ὑφ' αὐτὸ ὡς εἶδος πρὸς ἕλην οὕτως ἔχει πρὸς ἄλλα. In that general context I find it hard to suppose that ἀνώτερον can mean anything but "further from the centre and nearer the circumference". (*Cf. infra*, 312 a, 12, φαιμέν δὲ τὸ μὲν περιέχον τοῦ εἶδους εἶναι, τὸ δὲ περιεχόμενον

τῆς ὕλης). Mr. Stocks is driven to take ἀνώτερον as meaning "prior in serial order" and to argue that what is τὸ ἀνώτερον depends on the sense you give to the couple water, air. This is ingenious, but I find it very hard to believe that τὸ ἀνώτερον means τὸ προτερον, especially in a general context in which ἄνω and κάτω are necessarily used over and over again in a local sense. Indeed, I think Mr. Stocks falls himself into an inconsistency in his exegesis. His remark that though water is "like earth," earth must not be said to be "like water" is clearly, I think, a correct interpretation of Aristotle's meaning. But is it consistent with the further view that γῆ is οἶον εἶδος of water? I suspect Aristotle of a confusion of thought which no ingenuity can explain away. On the one hand, he is anxious to argue that the "natural motion" of each of the "four bodies" is "towards its form"; on the other, it is certain, as Mr. Joachim reminds us, that he also held that the further away the "proper region" of a body is from the centre, the more nearly does that body approximate to the upper end of the "ladder of being," Form actualised apart from Matter. Any attempt to combine these two theories is bound to result in incoherence. Since water moves "naturally" down until it reaches the surface of the earth, by the first theory earth ought to be οἶον εἶδος of water; but since water is "above" earth, by the second theory, water ought to be more of the nature of Form and earth of Matter. You cannot have it both ways, but to be in accord with both of Aristotle's theories, you are condemned to make the attempt.

§62 a, 24. As a final "observe," I should like to call attention to the change in punctuation here which makes sense out of nonsense by shifting a comma. The marvel is that it should have been left to Mr. Ross to make and Mr. Stocks to publish so simple and necessary an alteration.

A. E. TAYLOR.

Human Nature and Conduct: an Introduction to Social Psychology. By JOHN DEWEY. London: George Allen & Unwin Ltd. Pp. vii, 336.

THE main purpose of Prof. Dewey's latest book appears to be to correct certain fundamental and widespread errors in ethical and psychological speculation, and to establish in their place certain positive views. But these positive views cannot readily be grasped except in the light of the errors with which they are contrasted. To attempt, then, a brief summary of the chief errors against which Prof. Dewey protests, we may say that they are the treatment of morality and moral activity as something different and separate from the rest of conduct, the treatment of the individual apart from his environment and from other individuals, and the treatment of motive and of ends as distinct and separate from the activities which arise from the motive and are directed towards the end.

The subject of the book's contribution to positive theory is the place of Habit, Impulse, and Intelligence in human conduct. The first section deals with Habit, by which is meant not habit in the limited sense usually intended by the term, but rather what we should call formed dispositions or acquired tendencies to action. The first error to be denounced is that which consists in treating habit as something belonging peculiarly to the individual, whereas it is, in reality, just as much a product of the environment. "Moral dispositions are thought of as belonging exclusively to a self. The self is thereby isolated from natural and social surroundings," whereas in reality habits are "working adaptations of personal capacities with environing forces. . . . They are interactions of elements contributed by the make-up of an individual with elements supplied by the out-door world" (p. 16). As a statement of fact this seems undeniable. But then who denies it? Psychology and common-sense are at one in speaking of the individual as that which has the habits or dispositions and of the habits as the habits of this or that individual, and I fail to see how else we are to express the obvious facts of experience. But that certainly in no way involves the absurdity of regarding the individual as something entirely isolated from or uninfluenced by his surroundings, or of doubting that the individual is what he is as a result of the environment in which he has developed just as much as of the character which was innate in him. If a plant grows vigorously in favourable ground, no one doubts that its growth is due just as much to the soil and water as to its own "nature". But it is still the plant which grows, not the soil and water. I do not see what is to be gained by obscuring this distinction, or objecting to the natural way of expressing these facts.

It is possible that Prof. Dewey had, at the same time, another point in his mind. There is certainly a tendency, particularly in popular thinking about morals, to make an unreal separation in the individual's character between what is due to his environment and what is due to the individual himself, and to assume that, for the purposes of moral judgments, we can consider the latter alone and disregard the former. It is this point of view which is at the back of people's minds when they plead with us not to condemn the evil character of a man who has grown up amid evil surroundings, on the ground that "it is not his fault" and that "he has never had a chance". But this is rather a popular error, which is avoided in most serious philosophical speculation. And even this point of view would not wish to deny that as a psychological fact the actual character was the result of the interaction between the environment and "the make-up of the individual". It would be a bad misunderstanding to confuse this ethical fallacy, which is fairly common, with a psychological fallacy which no one is likely to commit.

We find the same difficulty in understanding exactly how much is being asserted and how much denied in other passages. In Chapter VI. of the first section of the book Prof. Dewey carries the

same line of argument to the length of challenging the whole idea of independent individual minds, from which he declares all "orthodox psychology" starts. But the arguments he uses only have force against attempts to treat the individual mind as something entirely isolated from and uninfluenced by social and physical environment. And we are forced to ask again what exponent of "orthodox psychology" is really guilty of such an error. Of course, if Prof. Dewey means to assert that it is wrong from any point of view to recognise any distinction between one mind and another at all, the case would be different. But we should expect much more argument to support a position which even the most hardened Absolutist would hesitate to maintain, especially when we find that Prof. Dewey himself, as in the quotation just given above, frequently talks quite cheerfully about individual minds.

In this first section Prof. Dewey protests against the tendency to treat habit as essentially a conservative influence (*e.g.*, p. 66). But in the second part of the book, which is concerned with the place of impulse, he seems himself inclined to follow this tendency. At anyrate, as contrasted with impulse, it is habit which makes for stability and against change (*e.g.*, throughout Chapter III. of the second part). Impulse, on the other hand, is the progressive force making for change. "Impulses are the pivots upon which the re-organisation of activities turns, they are agencies of deviation, for giving new directions to old habits, and changing their quality" (p. 93). He criticises strongly the idea of distinct instincts, leading to definite and specific kinds of behaviour, and the tendency of many writers on Social Psychology to start with a study of these specific instincts and use them as principles of explanation of social phenomena. On his view, on the other hand, impulse is infinitely plastic and may take an indefinite number of forms as a result of its interaction with different surroundings. In consequence, it is a fundamental error to start our investigations from a study of this blind and inchoate impulse, for from it we can learn nothing. It only acquires form and significance when organised into this or that specific disposition under the influence of our social environment. So that we can never explain why this particular thing happens by ascribing it to impulse or to the instincts, for these may be developed in any direction. For a real explanation we must look to the environment, particularly to the environment constituted by other human beings with the habits and customs that they have formed. It is these already formed habits and customs into which we are born which are the chief agents in forming our characters and in moulding the raw material of impulse with which each of us starts at birth. Prof. Dewey applies this point of view to an examination in detail of several alleged cases of specific instincts, such as the instincts of self-preservation, acquisitiveness, the "will to power," and others, and in the light of it discusses the supposed necessity of the present economic system and the alleged inevitability of war.

In this section, as a whole, we see Prof. Dewey at his best. Here there is no doubt about the reality of the views which he criticises nor about the persons who hold them. And his own view is put forward with force and clearness, and worked out with most illuminating comments on the particular instances which he examines. The view itself deserves most respectful attention, especially as it has received confirmation from other lines of investigation. The late Dr. Rivers, for instance, has suggested similar conclusions as a result of his anthropological researches. Thus, he says, when we come to investigate the reasons for the existence of any particular institution, such as the blood-feud, in a particular tribe, our first tendency is to look for them in some innate tendency in the minds of the people concerned, in this case a specially strong development of hate or anger or cruelty in their characters. But on investigation we fail to find this: the tribe turns out to be no more bloodthirsty by nature than other tribes where the blood-feud is unknown. So that, instead of explaining the blood-feud by innate bloodthirstiness, we find that we have to explain the apparent bloodthirstiness by the fact of the institution of the blood-feud. It is the customs and institutions which produce the specific tendencies of individuals rather than the tendencies of the individuals which produce the customs and institutions. It is part of this new tendency in anthropology, of which Dr. Rivers was one of the pioneers, to abandon the old idea of a single direction of cultural development, based on the fiction of a fixed "human nature," and to trace resemblances in different cultures not to the resemblances in human nature but to a definite historical connexion, direct or indirect, between the two. The parallel of all this with Prof. Dewey's argument is striking.

It is undoubted that this view represents a wholesome reaction alike against the extravagances of the instinct-psychologists and against the crude superficialities of the "you-can't-change-human-nature" type of argument, beloved of the "practical man". Incidentally, it may be remarked that the chapter in which Prof. Dewey discusses in what senses you can and cannot change human nature is one of the most interesting things in the book. But, for all that, there does seem to be a certain danger that this reaction may carry us too far in the opposite direction. It is certainly going far beyond what the observable facts warrant to talk as if there was no limit to the plasticity of human impulse or as if human conduct was indefinitely variable by the influence of the "social context". It is surely just the task of Social Psychology to try to find what the limits of possible variation are. It may be true that we can find no specific tendency to start a blood-feud. But that does not prove that the blood-feud is simply the product of accidental and alterable conditions. We must look for its cause, no doubt, in the first place in the peculiar institutions and circumstances of the tribe: but we must also consider what there is in man's mental make-up which makes these particular institutions possible and responds in this way to those particular circumstances.

It seems to me beyond doubt that Prof. Dewey pushes his point of view too far. To say, for instance, that "the actual content and feel of hunger and sex are indefinitely varied according to their social contexts" (p. 153) is a gross exaggeration. However they may vary, there is always an element—and in these particular cases the most important element—which remains recognisably the same; otherwise we should never have come to call their varied manifestations by the same name. In fact, we may say, it involves a false antithesis to ask whether or no there are specific instincts or impulses. The right question to ask is how specific our innate tendencies are. Thus, even if we hold that there are no special tendencies to form one habit rather than another (and to hold this would be to go far beyond what the facts we know warrant), yet even Prof. Dewey would admit that there is an innate tendency to form habits, that there is something permanently present in the make-up of all human beings which makes it easy for them to act in the way in which they have always acted and difficult for them suddenly to change their accustomed modes of conduct. This is so far a specific tendency that it is capable of being described in words which have a definite meaning. It is not infinitely plastic: different surroundings will not change it into a tendency not to form habits. And it is a tendency of extreme importance, as Prof. Dewey sees, when he uses it as the explanation of the difficulty or impossibility of making sweeping and sudden social changes (p. 108).

In the third section of the book we come to the place of intelligence in conduct. Either impulse or habit if working by themselves may make thought or deliberation impossible. Yet thought and deliberation are the result of habit and impulse. It is when there comes a check in the smooth working of habit, either through a conflict of habits or a conflict of habit with environment, that thought arises. For then the impulse which provides the driving force of activity is checked and has to turn in new directions to find an outlet. The instrument in this search is thought, which consists essentially in trying over in imagination different conceivable lines of conduct, until one is found for which the way to actual expression is open. The influence of Bergson on this line of thought is sufficiently obvious.

In the course of this discussion, there comes in an interesting criticism of Utilitarianism. The idea of the prospect of future pleasures as a deciding factor in our action is declared by Prof. Dewey to be fundamentally wrong. As against it, he urges (pp. 201-203) that it is not about pleasures or pains in the future that we reflect, but about future objective results and our present pleasures or pains in the idea of them. The distinction is worth making. But it is possible that Prof. Dewey exaggerates the difficulty of foreseeing how we shall feel when some particular situation occurs in the future. Has he never heard people say, "I don't feel I want to go now, but I know I shall enjoy it when I get there," and seen them guide their actions accordingly?

On the other hand, he certainly exaggerates the extent to which Utilitarianism concentrates all attention on the future. Neither Bentham nor Mill would have thought of suggesting that a present pleasure should be postponed to a future one just because it was future. The happiness that they make their aim is emphatically not something remote and far off, but something which is being realised as far as possible all the time as we go along.

This brings us to a consideration of Prof. Dewey's final position, which is suggested in this part of the book, and developed further in the fourth and last section. At the risk of doing injustice to a closely compressed exposition, a summary must be attempted.

There is no special and separate sphere of morality or moral thinking. Moral thinking is all thinking so far as it gives us knowledge which helps to guide human action, and morality is what is concerned whenever there are alternative possibilities of action. We judge of these alternative possibilities by their results, including in this the results on the character of the agent, which is why the state of mind and the feelings—falsely called the motives—which accompany the overt action are of importance. There are no universal rules of action, because every action is unique in its characteristics and its circumstances, and the consequences of an action can never be precisely repeated. But as there are certain resemblances between different actions and their consequences, we can get general empirical rules which will hold for the majority of cases. On the other hand, we must not think of the consequences by which we judge actions as ends or results only to be attained at some date in the future, while present activities are only of value as means to them. On the contrary, our aim is always to affect the quality of present action. "So act as to increase the meaning of present experience," is the categorical imperative that Prof. Dewey gives us (p. 283). Or again (p. 293), "Our moral measure for estimating any existing arrangement or any proposed reform is its effect upon impulse and habits. Does it liberate or suppress, ossify or render flexible, divide or unify interest? Is perception quickened or dulled? Is memory made apt and extensive or narrow and diffusely irrelevant? Is imagination diverted to fantasy and compensatory dreams, or does it add fertility to life? Is thought creative or pushed on one side into pedantic specialisms?"

The greater part of this seems to me admirable doctrine, which I, at anyrate, could heartily accept. But in order to accept it I do not find it in the least necessary to start from that blend of Absolutism, Pragmatism and Behaviourism in which Prof. Dewey's fundamental standpoint seems to consist. Nor do I think that the errors of those who would not accept these ethical views could be traced, as Prof. Dewey would trace them, to initial errors about the separateness of individual minds or the relation of motive and act—another point on which he seems to be largely occupied in disproving views that no one holds—or any other of the views with which Prof. Dewey would connect it. I have indicated above the con-

fusion that I believe he makes between the fallacy of denying the psychological influence of the environment on the formation of character and the fallacy of trying to abstract from this in passing moral judgments. It is quite easy to commit and defend the latter without in the least being guilty of the former. And the same seems to me to apply to a good deal of Prof. Dewey's diagnosis of the fundamental bases of some of the errors which he criticises.

But there is a more important criticism to make than this. It is clear that a great deal of the significance of these positive views depends on the views with which they are contrasted and the errors which they are supposed to correct. And in this critical work Prof. Dewey is by no means at his happiest. Far too often he criticises a point of view without giving us any indication of the actual people who are supposed to hold it, and, as his own exposition of the views that he is criticising is never very precise or detailed, we are left in doubt what exactly the view itself is, and whether there is really anyone who holds it. Where he does mention a particular thinker or school of thought by name, he rarely does justice to them, and in some cases simply misunderstands them. We see this particularly when he is insisting on one of his most fundamental points, that moral thinking is not concerned with a remote end, a result to be aimed at at some future date, altogether separate from and beyond our present activities. Such criticism is valid against a crude Heaven-and-Hell doctrine in which future rewards and punishments are regarded as the only objects of our present endeavours. But it simply has no bearing on most serious ethical speculation. Something has already been said of the bearing of this on criticisms of Utilitarianism. It is obviously entirely unfair to say of the Utilitarians that "they retained the notion that the good is future and hence outside the meaning of present activity" (p. 290). And it is still more absurd to bring a similar reproach against Aristotle. To Aristotle, indeed, Prof. Dewey is consistently unfair throughout. He writes of him as if Aristotle had written nothing but the second part of the Tenth Book of the *Ethics*, and he betrays no appreciation of the fact that in reality Aristotle shared and anticipated many of his own most fundamental doctrines.

The fact is that Prof. Dewey does not seem to understand what most moral philosophers are trying to do. And yet it is very much the same as what he is trying to do himself. He suspects them of postulating an end or result beyond all activity when they are really only trying to distinguish and describe the element of value in all activity. This attempt must be made, if we can speculate on these matters at all, and Prof. Dewey makes it as well as anyone else. His description of the test of good or right action, quoted above, is in this respect exactly on a par with the "pleasure" of the Utilitarians or the "activity in accordance with excellence" of Aristotle. This last, indeed, it closely resembles, and Aristotle would probably have accepted most of Prof. Dewey's description, though he might have complained somewhat of its vagueness.

Enough has been said to show the importance of the subjects with which the book deals. And a contribution to the solution of those questions by a writer of the eminence of Prof. Dewey must be welcome to all those who are interested in them. But—if it is permissible to end on a note of criticism—the contribution would have been still more welcome if it had been written in a less obscure and compressed style, and if we could be satisfied that Prof. Dewey had succeeded in understanding and doing justice to those writers and schools of thought which he singles out for criticism. As it is, the uncertainties on this point and the difficulty that many readers will feel in being quite sure that they have grasped what Prof. Dewey really means, must sensibly modify the value of the book. But it will none the less remain an important contribution to the discussion of a most important subject.

G. C. FIELD.

Philosophical Studies. By G. E. MOORE, Litt.D. London: Kegan Paul, Trench, Trubner & Co. Ltd., 1922. Pp. viii, 342.

THE studies contained in this volume are the following: I. The Refutation of Idealism, II. The Nature and Reality of Objects of Perception, III. William James' "Pragmatism," IV. Hume's Philosophy, V. The Status of Sense-Data, VI. The Conception of Reality, VII. Some Judgments of Perception, VIII. The Conception of Intrinsic Value, IX. External and Internal Relations, X. The Nature of Moral Philosophy. Of these, the eighth and the tenth have not been published before; the others are reprinted from various sources and are presented here in the order of their original appearance. The only alteration in any of them is in the ninth study where the logical symbols employed in part of the argument are altered for printers' convenience, and the relevant references are: for I., *MIND*, vol. xii.; for IV., *The New Quarterly*, November, 1909, and for the others the *Proceedings of the Aristotelian Society*, vols. vi., viii., xiv., xviii., xix., xx. (in this order).

The mere statement of this table of contents absolves a reviewer from the most invidious part of his usual task. There is no need for him to scatter hints, more or less discreetly, on the important question whether the book should or should not be read, for the distinction of these essays is already widely known, and the importance of the ideas expressed in them is admitted in all competent quarters. On this head, indeed, it is enough to say that the new essays have the same high quality as the old—the same lucidity, the same strength and vivacity of expression, the same directness and sureness, the same exceptional capacity for putting abstract and fundamental questions simply and for keeping the reader's attention fixed upon them.

I shall turn, then, at once, to the most obvious reflexion which suggests itself on the appearance of this volume, and consider the

conjoint effect of these several studies now united between the same boards. For this purpose it seems best to take some of the leading ideas in the 'Refutation' as a basis and to attempt to follow their subsequent development in the later papers. This procedure may not be entirely fair, since Mr. Moore, with a frankness that he can afford to use, tells us in his preface that the 'Refutation' is 'very confused' and that it contains 'a good many downright mistakes'. Still, it is there, right at the front, and comparison is surely invited.

The 'Refutation,' as I understand it, is argued in this wise: The doctrine that *esse* is *percipi* (when *percipi* is interpreted widely enough to include thought as well as sense) is a necessary (although not perhaps a sufficient) premiss for any variety of idealism. Now *esse* does not mean *percipi*, and the relation between the two, if it is universal and necessary, must also be synthetic. Idealists, however, fail to notice this because they fail to notice that the two really are distinct. They evade the point by speaking of 'illegitimate abstractions' or of the 'contents' of experience, instead of looking at the facts and seeing the difference. Suppose, then, that we look and see. If we take, say, the sensation of blue and the sensation of green we see at once that they have a common part (*viz.*, consciousness), and a part not common (*viz.*, blue in the one case and green in the other). The consciousness therefore must be sharply distinguished from its variable objects, that of which we are conscious; and although this consciousness is (as it were) diaphanous when we turn our attention to it, still we *can* see it, when we look, precisely in the same way as we can see the blue or the green. In actual fact, we are directly aware of many things which are not our consciousness at all. *Inter alia*, we are directly aware of matter in space.

As it stands, there is at least one 'downright mistake' in this argument. Even if 'consciousness' were the only common part of the complex facts 'sensation of blue' and 'sensation of green' (and plainly it is not, since extension and duration, for instance, are also common to both) it would not follow that *sensing* and *sensa*, to use later terms, were distinct existences. On the other hand, while this does not follow, it might very well be true, and Mr. Moore, as many have since believed, might really have enabled us to see the facts as they are. If so, we should have a good deal to think about, and I shall begin by considering three of the pertinent questions which, pretty plainly, arise. These are: the interpretation (on the theory) of this 'consciousness'; the interpretation of its objects; and the implied conception of *esse* itself.

The first point receives very little mention in these pages. It is touched upon, indeed, in the second essay where we are told, perhaps to our astonishment, that we can observe our perception of a book to be near the book in precisely the same sense in which we observe the book to be near the shelf (p. 71). Again, in the fifth essay, we have some discussion directed towards showing that sense-data have to *something* the relation of being directly apprehended,

and that this *something* may perhaps be 'me' although 'I' may be only a name for a certain kind of connected set of attentive acts. On the whole, however, there is very little about it, and I think it is a pity that Mr. Moore did not see his way to include the paper in which he did discuss this important question at some length. I refer to his discussion of 'The Subject Matter of Psychology' in the *Aristotelian Proceedings*, vol. x. From his latest remarks on the question (*ibid.*, vol. xxi.) I should gather that he has altered his views considerably.

The second point, on the other hand, is discussed very fully in this volume in some of its most important aspects. Indeed the most persistent problem of these studies is the problem of the precise character of the objects directly perceived, and of the objects whose existence we are entitled to infer from these. Much in these discussions depends for its value on the precision of its detail. Much of it is pioneer work where logical possibilities are suggested which have since been elaborated by others. I cannot, therefore, do it justice here, but I may indicate some of the principal points.

The second essay touches a fundamental issue when it begins by pointing out that we all believe in the existence of something other than ourselves and what we directly perceive, and consequently that a philosopher must set himself to enquire whether there are or are not sufficient reasons for this belief. Now the perceptions of other people plainly belong to this class and we certainly do believe that there are other people who have these perceptions. If, however, *our own* perceptions were the only things which we could directly perceive we could never have sufficient reasons for believing in the existence of *other people's* perceptions, for any inductive generalisation must deal with entities of the same kind as the observed entities on which it is based. These, by hypothesis, are *ours* and only ours—which is just what other people's perceptions are not. We may be entitled to conclude that all eggs of a certain kind have been laid by hens because a sufficient number of eggs have been observed to be laid by hens (and because there are no contradictory instances), but if the hens in these observed cases had always been near their eggs we certainly could not conclude from the observations that there was the least reason for supposing that any egg could be laid by a hen that had never been anywhere near it. So here. If we were confined to our own perceptions, then the mere fact that what we call our perception of another man clutching his toe might be similar to what we call our perception of our own hand clutching our own toe, could not give us the slightest reason for inferring that a pain, not ours, probably accompanies the first perception, in the way our pain certainly accompanies the second. We should always have to infer a pain of our own—in this case an unperceived one. If, on the other hand, the other man's body which we perceive is not our own at all, then it may be thoroughly reasonable to conclude that *his* body has the same relation to *his* pain as *our* body has to *our* pain.

To avoid an inconvenient loneliness, therefore, we had better be sensible and admit that we really do perceive some things that really, quite simply, exist. This is the main conclusion, and it is supported by a brief defence of the position against some of the arguments commonly brought against it. In its way, the defence is something of a prophecy for it is concerned very largely with an attempt to show that the contradictions alleged to cluster around certain sensory appearances may depend, at bottom, on the crude simplicity of the statement that they are in the same place.

The essay on Hume's Philosophy argues in similar vein when it criticises Hume's reasons for supposing that 'external' facts cannot be perceived. A further stage is reached, however, in the question asked at the close of this essay—the question, namely, 'whether there are any matters of fact beyond our own observation, which we know for certain and which yet we know directly and immediately'. In the essay on 'The Status of Sense Data,' however, we are brought to the less general question of the relation of 'sensibles' to physical objects. After discussion, Mr. Moore concludes here that we 'have no reason whatever for thinking that sensibles ever are experienced by us in any other sense than that of being directly apprehended by us' (p. 177). If so, there is nothing to prevent us from believing that they may exist when we do not perceive them, but the only positive reason for this conclusion which Mr. Moore is prepared to offer is (in Hume's words and with something of Hume's thought) that we have a 'strong propensity to believe' in the existence of these very sensibles provided that we perceive them 'in sensation proper'.

This restriction is perhaps the hardest part of the business, for we have the same propensity in dreams when we are dreaming, and in hallucinations; and here the propensity succumbs to argument. It is not quite evident therefore why we should place our confidence in the propensity when it urges a Dalton to say that his stockings are of the same colour and at the same time urges the other members of the Royal Society to say that the colours are different since one stocking is red and the other green. The propensity, indeed, may be driven to explain itself in a highly Pickwickian sense. On the other hand, it may not. What seems certain is that the sensibles we directly apprehend are, in some cases at least, not simply identical with physical objects, and yet that our knowledge of physical objects is based on our apprehension of sensibles. We have therefore to explore all reasonable possibilities which are consistent with these certainties.

The essay concludes with this philosophical exploration, and the subject recurs in the seventh paper. Here the question is "What precisely do we do when we judge, let us say, that 'This is an inkstand'?" Such a judgment enables us to select *the* thing which stands in a certain relation to *this* sense-datum. It professes to be about the inkstand, yet its genuine subject must be 'this presented object' (*i.e.*, the perceived sense-datum) which, obviously, is not the

whole inkstand. What can be meant, then? If we held what Mr. Moore calls the Mill-Russell view, we might consistently interpret the facts of the case in terms of sense-data, actual and possible; but on such a view there would not, in strictness, be anything in the world of which we could truly assert that *it* was an inkstand. If, on the other hand, we believe that we are speaking with literal accuracy when we say 'This is an inkstand' we are bound to assert identity between 'this' and (some part of) the inkstand, and in that case what are we to make of the notorious fact that our judgments of perception constantly refer to one and the same inkstand despite the perceptible differences in the relevant sense-data when, *e.g.*, we approach it or recede from it? Mr. Moore is inclined to think that there *may* be an answer to this difficulty. This answer, if it is tenable, would assert that what is perceived to *be* different in such a case is really only perceived to *seem* different. If this answer is not tenable then the inkstand of common speech is only a convenient periphrasis, and the corresponding reality ought to be described with the appropriate circumlocutions of the Mill-Russell theory.

I suggest with diffidence, certain reflexions. I think I do perceive inkstands—the objects, not the sense data. I perceive them, indeed, under the limitations of my sensory faculties, but I never ascribe these limitations to the object perceived. Strictly, then, I perceive this inkstand in so far as my eyes will let me, and what I am bound to ask myself is whether they never let me see anything that is literally identical with anything in the inkstand. Mr. Moore's argument, I think, cannot prove that this is never or seldom the case, and I should not despair of preserving for the poor inkstand some remnants of continuing existence. On the other hand, quite frankly, I cannot see the tenability of his alternative to the Mill-Russell view. If a thing *seems* what it *is not*, this seeming surely must be a mistake; and I do not see that it matters whether it *seems* what it *is not* perceptibly or imperceptibly. Why should perception be less likely to err than any other species of apprehension? Why in the world should it be infallible? I suppose I am heterodox, but for the life of me I cannot see it.

A third point arising out of the 'Refutation' is the meaning which Mr. Moore himself gives to *esse*, existence, or reality. In the second paper he explains that *esse* has a common, simple sense which cannot be further explained and that any pretended definitions are either circular or beside the point. In the sixth paper, however, he has something more to say, and there his conclusion is, quite simply, that 'existence,' 'reality' and similar terms do not stand for any conception whatever. To say that lions are real is only another way of saying that there are such things as lions. It does not give the lions a character as the statement that 'lions are tawny' would. Incidentally, when people think of unicorns it does not follow that unicorns exist (or half exist). There are no such things at all. And we may add that when a man says that God

exists he does not mean to ascribe any character or property to the deity. He means that there is such a being.

Unless we choose to confine the term 'existence,' say, to spatio-temporal existence, this conclusion seems manifestly sound. It is denied, of course, by that ontological conceptualism which identifies reality with thought, and thought with characterising; but I do not think it would be denied by other so-called idealisms. Berkeley tells us, to be sure, that an intuitive knowledge of his *esse-percipi* theory of sense-data "may be obtained by anyone that shall attend to what is meant by the term 'exist' when applied to sensible things" (*Principles*, § 3). This, however, is a point of language only. If you ask what you mean when you say that there is a pain, Berkeley tells us in effect, you mean, surely, that someone is feeling one. And similarly when you say that there is a colour you mean that some one is seeing one. For Berkeley this is self-evident in both cases; for many of us in the first case only; for some of us in neither; but I do not think we need suppose Berkeley to have asserted any new and peculiar meaning of existence (as Mr. Moore suggests, pp. 73 *sqq.*). When Berkeley said 'There is a blue,' he *did* mean that some one was seeing it. When he said 'There is a God' he did *not* mean that someone was thinking of Him. And yet we need not suppose that he used the word existence in a double sense.

Twenty years ago, I suppose, we should have been told that the most distinctive features of Mr. Moore's philosophy were his doctrine of propositions and his logical pluralism; and we should have been referred to the article on Judgment (*MIND*, vol. viii.) and to the discussion of Identity (*Aristotelian Proceedings*, vol. i.). These discussions are not reprinted here, but the pluralism, at least, is strongly in evidence, and its foundations are reviewed in the eighth and in the ninth studies. The eighth, on Intrinsic Value, is concerned, during the central part of its argument with the meaning and legitimacy of the term 'intrinsic,' and this discussion seems to me as illuminating as it is brief. The ninth essay, with a clearness not less admirable, explains why those who hold that relations modify their terms make the mistake which they do make. Granting that Edward was the father of George, it is clear that any person who was not George's father could not be Edward; for Edward had these properties and relations; but it does not follow that there is any logical contradiction in supposing that Edward might have existed without having begotten George. On the other hand Mr. Moore admits that it may be true that Edward could not have been George's father without possessing the special properties on which this special relation depends, and therefore, that the relational property, in this sense, may be grounded in its terms.

The ethical portions of the argument in the eighth essay, and the analysis of moral predicates in the tenth are interesting and important. Some of the contentions, however, may not convince. It is true no doubt, that many objective definitions of the meaning of

'good' (as, for example, that 'better' means 'more fully evolved') would not satisfy the objectivists in morals. On the other hand it may be doubted whether Mr. Moore is right in supposing that the true intent of these objectivists is to assert an intrinsic property when they assert 'good'. At any rate if an intrinsic value is 'the sort of value which a thing would possess if it existed quite alone' (p. 327), it seems pretty clear that many objectivists would repudiate the view he ascribes to them. If I were to say that 'life is worth living' I should not mean, I think, that it is worth living 'quite alone'. Indeed, I do not know what I should be saying if I were to say such a thing. I should mean, I think, that it is worth living *in its relationships*. And still I should deny that I was simply expressing my feelings about it when I said it was worth living. To take another point, Mr. Moore maintains that beauty is not an intrinsic property while yellow is. Beauty, he thinks, depends wholly on intrinsic properties, but the properties which really are intrinsic, like yellow, would, between them, completely describe the thing without any mention of beauty. I confess I cannot see how the description would be complete without beauty, and Mr. Moore's argument would seem to me to prove, not that beauty is other than intrinsic, but that there are different orders of intrinsic properties.

The essay on William James' "Pragmatism" seems to me one of the best of the many convincing refutations of this theory of 'truth'. Truth, in any ordinary sense, is not what the pragmatist says it is. No doubt, the pragmatist might retort that he means something different. He means, for example, that truth is a property of beliefs, that beliefs are adjustments, and that true beliefs are effective adjustments. But when he says that this theory is 'true,' he would appear to be speaking of 'truth' in the ordinary sense, and not in this new way of his. In short, truth has a meaning, and there is no point in calling something different by the same name.

Philosophy may be pursued in many fashions, but two of these fashions seem dominant in their importance. The first of these, by an elaborately circular argument, tries to convert hypothesis into fact by making it big enough to support everything. The second, with infinite pertinacity seeks to find *something* which a reasonable man dare not dispute. Both ways have their disappointments. The first, to mention one point only, seems often to perplex the plainest questions without being able to deny their pertinence. The second may seem so preoccupied with its base that it has no time to operate from the base. We are older, now, than Descartes was, and less confident of our ability to reconstruct the sciences if only we discover a *certain* foundation. Yet the man who cannot learn from the second method has no philosophy in him. I do not say that we should all follow it. Each of us, I suppose, should go on in his own way. What I say is that we can all learn from it, and this is another way of saying that we have all a vast deal to learn from Mr. Moore.

JOHN LAIRD.

VI.—NEW BOOKS.

A History of Indian Philosophy. By Prof. SURENDRANATH DASGUPTA, M.A., Ph.D. Vol. I. Cambridge, at the University Press, 1922. Pp. xvi, 528.

We are now living, or trying to live, in a period of conciliation after strife; and there are few more hopeful omens for the unity of the world than the increasing interest in Eastern thought that is now being displayed in Western countries. Our own country has perhaps been culpably slow. Rabindranath Tagore has recently told us that 'if you compare England with Germany or France you will find she has produced the smallest number of scholars who have studied Indian literature and philosophy with any amount of sympathetic insight or thoroughness'. Happily, however, the Indians themselves have now begun to realise that, in a different sense from that in which the phrase was originally used, they must 'educate their masters'. Tagore himself has done very effective work in this direction; and, on the more purely philosophical side, Vivekananda and others have rendered important service. Now at last attempts are being made by Indian writers to introduce us to the whole range of their philosophical development. A comprehensive history by Prof. Radhalekshman, already well known in this country by several interesting works, has been announced as one of the forthcoming books in the 'Library of Philosophy'; and this has been forestalled by Prof. Dasgupta. On the value of his work the present reviewer is unfortunately not fully competent to pronounce a judgment. A thorough knowledge of Sanskrit would be necessary for this. All that I can attempt is to appraise it from the point of view of an English reader interested in philosophical problems.

Although this volume does not cover the whole extent of Indian speculation, it includes enough to furnish us with a general survey of all the main lines of thought. It covers the period from the seventh century B.C., to which the earlier Upanishads are referred, to the beginning of the ninth century, A.D., when the great commentaries of Sankara, generally recognised as the most influential of all the Indian philosophical writings, were composed. A Western reader, having in mind the evolution of early thought in Greece, so apparently inevitable that Hegel was able to regard it as governed by the principle of his own dialectic, naturally hopes that an historian of Indian philosophy would be able to show in it a somewhat similar orderly march. But Prof. Dasgupta warns us at the outset that nothing of this sort is to be expected. 'It is hardly possible,' he says (p. 62), 'to attempt a history of Indian philosophy in the manner in which the histories of European philosophy have been written. In Europe from the earliest times, thinkers came one after another and offered their independent speculations on philosophy. The work of a modern historian consists in chronologically arranging these views and in commenting upon the influence of one school upon another or upon the general change from time to time in the tides and currents of philosophy. Here in India, however, the principal systems of philosophy had their

beginning in times of which we have but scanty record, and it is hardly possible to say correctly at what time they began, or to compute the influence that led to the foundation of so many divergent systems at so early a period.' 'The systematic treatises,' he adds, 'were written in short and pregnant half-sentences (*sūtras*) which did not elaborate the subject in detail, but served only to hold before the reader the lost threads of memory of elaborate disquisitions with which he was already thoroughly acquainted. It seems, therefore, that these pithy half-sentences were the lecture hints, intended for those who had had direct elaborate oral instructions on the subject.'

It must be remembered, however, that, in order to bring the evolution of Greek thought into relation with the dialectic, Hegel had to begin with Parmenides and Heraclitus, and even somewhat to invert the historical order of these. If we go back to Pythagoras and Thales, we seem to find something much more nearly resembling the beginnings of Indian speculation; and indeed in these early stages the two lines of thought have so much resemblance that some have been tempted to refer them to a common origin. Of this there does not appear to be any evidence; but it seems true to say that both began as religious sects or brotherhoods rather than as bodies of scientific thinkers; and that Indian philosophy retained this characteristic much longer than was the case in Greece. The travelling Sophists, coming from the outlying colonies, carrying ideas from one place to another, and subjecting them to open discussion, probably had a good deal to do with the change in Greece. In India it seems to have been the practice, even up to quite recent times, for isolated teachers to communicate their doctrines to a few receptive disciples. At any rate, India does not appear to have ever produced such a master of free discussion as Greece had in Socrates. What we find, on the whole, is a number of separate schools, not much influenced by one another, and consequently not giving rise to any very definite line of progress. In fact, the idea of progress seems to have very little place in Indian thought.

But, while there is less continuity in the history of Indian speculation than in that of Greece, it is not without some degree of unity. Its close contact with religion gives it a certain uniformity of tone. When Anaxagoras called attention to the place of mind or spirit (*νοῦς*) in the structure of the cosmos, he seemed, as Aristotle put it, to be like a sober man among those who idly babbled. This kind of sobriety is found in almost all Indian thinkers. They nearly all regard spirit or soul as the central reality. 'The systems of philosophy in India,' says Prof. Dasgupta (p. 71), 'were not stirred up merely by the speculative demands of the human mind . . . but by a deep craving after the realisation of the religious purpose of life.' Hence, 'with the exception of the Carvaka materialists all the other systems agree on some fundamental points of importance'. One of these is the theory of Karma and rebirth, in connexion with which 'they also agree in believing that this beginningless chain of karma and its fruits . . . has somewhere its end'. Again, 'all the Indian systems except Buddhism admit the existence of a permanent entity called *atman*, *purusa* or *jīva*. As to the exact nature of this soul there are indeed divergences of view.' Further, 'though the belief that the world is full of sorrow has not been equally prominently emphasised in all systems, yet it may be considered as being shared by all of them'. Finally, 'the Indian systems are all agreed upon the general principles of ethical conduct which must be followed for the attainment of salvation. That all passions are to be controlled, no injury to life¹ in any form should

¹ I understand this to mean *conscious* life. Injury to plant life does not appear to be, in general, forbidden.

be done, and that all desire for pleasures should be checked, are principles which are almost universally acknowledged.'

There is another characteristic of Indian thought, to which Prof. Dasgupta does not specifically refer, and which is perhaps not quite so universally present in it as those that he has noted, but which it seems important to notice as it is the source of some of the most serious difficulties that are felt by Western minds in trying to understand Indian philosophy. I mean its tendency to take refuge in what is formless and inexpressible. It is perhaps in this respect that Indian thought is most sharply contrasted with that of Greece. Prof. Burnet has said of the early Greek philosophies that 'what we have to do is not to think them by means of rational concepts, but to picture them in our minds by means of images. We do not understand the view we are studying till we have done this, and we ought even to be able to draw a diagram of it on paper.' There may be some exaggeration in this; but at least it may be said that, viewing Greek philosophy as a whole, we find nothing more central and fundamental in it than the conception of Form (*eidos*). It appears in the early thought of the Pythagoreans: it is the basis of the metaphysics of Plato and of the logic of Aristotle. On the other hand, few things are more striking in Indian thought than the constant effort to escape from name and form (*Namarupa*). This characteristic is found in the early Upanishads. 'When Bhava was questioned by Vaskali, he expounded the nature of Brahman to him by maintaining silence—"Teach me," said Vaskali, "most reverent sir, the nature of Brahman." Bhava, however, remained silent. But when the question was put forth a second and a third time he answered, "I teach you indeed but you do not understand; the Atman is silence". The way to indicate it is thus by *neti neti*, it is not this, it is not this. We cannot describe it by any positive content which is always limited by conceptual thought' (p. 45). Spirituality, mysticism, pessimism, asceticism, negativity—these are the recurrent notes in Indian speculation.

This characteristic makes it often very difficult for Western minds (especially those that are accustomed to diagrams) to interpret Indian philosophies with any clearness. As an instance, reference may be made to Buddhism. Buddhism, like Jainism, is generally classed among the atheistical religions. It has been so characterised by its best known English exponents; and this view of it is entirely confirmed by Prof. Dasgupta. 'The Mimamsakas,' he says (p. 325), 'the Carvakas, the Buddhists and the Jains all deny the existence of Isvara (God).' Mr. Holmes, however, in his interesting book on *The Creed of Buddha*, maintains that the founder of the religion only 'kept silence about' the divine Being; and there appears to be some difference of view among the Buddhists themselves with regard to this. And indeed it may be asked whether the rejection of Isvara necessarily implies the rejection of Brahman—i.e. of the unknowable God or Absolute.

It is possible that the underrating of form by Indian thinkers is partly responsible for a certain weakness that is sometimes apparent in their Logic. One of the doctrines of the Nyaya school is said to be (p. 346) that, in order to affirm the connexion between smoke and fire 'it is not enough that in all cases where there is smoke there should be fire, but it is necessary that in all those cases where there is no fire there should not be any smoke'. It seems clear that one of these statements is the obverted contrapositive of the other, and consequently does not really add anything to it. Similar errors are, I think, pretty common in the writings of Indian philosophers. Lucidity is seldom their strong point. Their arguments are often suggestive, but hardly ever cogent. They do not bear comparison with the reasonings of Zeno or Socrates. Nor are their

definitions always illuminating. According to Kanada, for example, (p. 288), 'Time is defined as that which gives the notion of youth in the young, simultaneity, and quickness'.

On the other hand, it is often claimed as one of the great merits of Indian philosophy that its terminology is singularly precise. The Sanskrit words that are employed in it have not been corrupted by popular usage in the way that most of the words that are current in the European languages have been. It is probably true that even Greek suffered in this respect more than Sanskrit ever did. We see here one of the few advantages of keeping scientific study in the hands of a select class of experts. It is disappointing, however, to find that even in the use of Sanskrit terms one cannot always be sure of the precise meaning; and I think it is the chief defect of Prof. Dasgupta's valuable work that he has not made a sufficient effort to make their meaning clear to English readers. It may be worth while to refer to one or two instances.

Manas is one of the terms for which it is most difficult to find a precise equivalent. It is usually translated 'mind,' with which of course it is etymologically connected; but this does not make it sufficiently definite. It has been suggested that its meaning corresponds pretty closely to 'attention,' especially in the sense in which that term is used by Dr. Ward. When 'mind' is used colloquially as a verb—as in 'mind your own business'—it approximates to this meaning. But sometimes also *manas* seems almost to correspond to 'intellect' in the sense in which it is employed by M. Bergson, or to 'understanding,' as distinguished from reason. It is, however, somewhat disconcerting to find that in one place (p. 25) Prof. Dasgupta translates it 'soul'. In other passages mind and soul are sharply distinguished. Thus on page 300, in giving an account of the Nyaya-Vaisesika philosophy, it is stated that 'Desire and antipathy also belong to the soul. None of these can belong either to the body or to the mind (*manas*).' Similarly, on pages 292, 295, 298, 311, *manas* is translated 'mind,' and pretty definitely distinguished from 'soul'. Of course the distinction is common enough in English, as in Tennyson's phrase:—

'That mind and soul, according well,
May make one music as before';

but one would like to have the distinction more precisely explained and more uniformly observed.

There seems also to be some lack of consistency in the explanation of the 'gunas'. On page 224 we are told that 'the *Karika* speaks of the gunas as being of the nature of pleasure, pain, and dullness (*sattva*, *rajas* and *tamas*). It also describes *sattva* as being light and illuminating, *rajas* as of the nature of energy and causing motion, and *tamas* as heavy and obstructing.' This appears to be the usual interpretation of the terms. But on page 264 we find it stated that 'Tamas, we know, represents the pain substance'.

There can be no doubt that Prof. Dasgupta's book contains a great deal of interesting material; and, coming from one who is a recognised expert in Sanskrit, it may be accepted as, in general, thoroughly reliable. But its value would be greatly enhanced for English readers if the Sanskrit terms were more fully explained and more consistently employed. The second volume will be awaited with eager anticipation; and we may hope that it will throw much further light on some things that remain a little obscure in the first. The later developments of Indian thought are less well known in this country than its early lisplings.

J. S. MACKENZIE.

L'Expérience humaine et la Causalité physique. By LÉON BRUNSCHVICG.
Bibliothèque de Philosophie Contemporaine. Paris, Alcan, 1922.
30 francs. Pp. xvi, 625.

It is safe to prophesy that this book will take rank as a classic, not on account of any strikingly new doctrine, although it has much originality of thought, but for its masterly interpretation of the evolution of a central philosophical problem. It places its author among the leaders of modern French thought, with men who like Lachelier and Boutroux, whom we have recently lost, are valued for the direction they give to philosophical research. The book itself is admirable in conception, clear in expression, and sustained in interest. Its theme is, the reciprocal work of positive science and speculative philosophy in evolving the new way of thinking the physical reality of the universe, which is called for by the principle of generalised relativity; and, more particularly, the historical stages by which in the last three centuries the concept of physical causality has changed its Aristotelian, anthropomorphic, character and, in becoming amenable to a purely geometrical treatment, has become humanist without ceasing to be scientific.

The problem is simple enough. A stone detached from a wall falling on a man kills him; it would not even have injured him had it touched him the moment it became detached. How then did it acquire that additional force from the single difference of the height? This problem has exercised generations of physicists and metaphysicists in ever-repeated efforts to explain it. Suppose, however, that we see the stone hurled on the man by his neighbour who has a grudge against him, then, on the contrary, there is no mystery for we seem to know the cause. Yet it is precisely the same problem except that we have the impression that we understand perfectly both the means used and the end sought. Curiosity is completely satisfied. We think we have found a perfectly natural interpretation of a strictly physical event, which in itself is devoid of any explanatory character, when we find there is joined to it an event of psychical origin. It is purely illusory. Like Tennyson's "flower in the crannied wall" the humble fact of everyday experience conceals the whole mystery of man and God and nature. Hume compared the principles of union among simple ideas to the Newtonian law of gravitation. There is the same mysterious inexplicability in each. "Here is a kind of *attraction*, which in the mental world will be found to have as extraordinary effects as in the natural." (Treatise I. 4.)

Is it possible then from the standpoint of pure empiricism to offer a theory of the relations between experience and causality which will satisfy the requirements of modern science? At first sight nothing seems easier. Are we not continually learning from experience in daily life, and are we not thereby supplied with abundant illustration of the natural interpretation of physical causation? This natural interpretation, however, met its complete check in the scepticism of Hume. Hume's scepticism must be answered, for if it is impossible to find in immediate experience anything to justify the law of physical causality, then every bond between phenomena is dissolved and the effort of modern thought to constitute a science of the universe, without theological postulates, is compromised. It is the complete failure of pure empiricism to do this which is the ground of the modern idealist theory in philosophy, and the modern principle of relativity confirms it in science.

Prof. Brunschvicg begins by examining the two notable attempts in modern times to meet Hume's scepticism from the standpoint of pure empiricism, namely, Maine de Biran's doctrine of internal experience and John Stuart Mill's associationism. The comparison and juxtaposition:

these two doctrines is very instructive. Maine de Biran's principle is that we conceive substance without inwardly perceiving it whereas we inwardly perceive force and in so doing at the same time conceive it outside us. Substance and force are distinguished in his theory by a radical difference of rhythm. Following the notion of substance we go from without to within, following the notion of force, from within to without. But what is there in this inwardly perceived force to convince us that there exist causes or productive forces outside us, like to those we employ in moving our body and which constitute the self-feeling? This is the crucial question as regards physical causality and Biran's principle cannot enlighten us. Mill's conception is the direct opposite. His theory of induction implies that we can apprehend causality as it exists directly in nature, without the addition of anything by the mind to the actually observed data, by making use of the purely negative process of elimination. We decompose thread by thread the entangled skein of apparent sequences and so allow the regular uniformity of succession to be isolated. The reply to this, according to Prof. Brunschvicg, is that such a process is falsified by the whole history of science. The universe of immediate experience contains less, and not, as Mill's theory supposes, more than science requires.

This criticism of pure empiricist method is preliminary to the historical treatment of the problem which is introduced by a consideration of the pre-scientific period of human thought. In this part of his work Prof. Brunschvicg follows the sociological and anthropological studies of the late Prof. Durkheim and of his present colleague Prof. Lévy-Bruhl, with a view to making clear the nature of the Aristotelian system of the four causes which has imposed itself on scientific and philosophic thought to our own day, and which in particular determined the intellectual organisation of experience in the medieval period before the rise of modern science. There is, he tells us, a contradiction which is explicit in Aristotle and which goes to the heart of the system. It seems equally Aristotelian to say that it is the matter, or that it is the form, which individualises. There are two divergent and equally dominant tendencies of the Aristotelian philosophy, artificialism and naturalism. In interpreting the relations of matter and form Aristotle takes by turns the standpoint of a sculptor and that of a naturalist. For the sculptor the unformed matter pre-exists; in the work of art the form is the principle of individuality. But when we pass to nature and take the standpoint of the naturalist, we see a plurality of individuals of the same species. It is then the form which is homogeneous and the matter which makes the difference.

With Descartes and Galileo we enter on the period which Prof. Brunschvicg terms that of mechanics, and he traces the development of the concept of physical causality through the seventeenth and eighteenth centuries to its apparent fixity in the philosophy of Kant. In the nineteenth century we have the rise and progress of the physical ideas, the most recent of which is the theory of generalised relativity. This completes the historical survey.

After following the various historical stages of the evolution of the concept Prof. Brunschvicg discusses, first, the constitution of physical causality, and next, the phases of human experience, developing the philosophical theory which his historical review has been intended to demonstrate. A quotation from the historical portion will indicate his standpoint better than any attempt to describe it. Referring to Pascal's pessimistic reflexion on the two infinities, that of the infinitely great and that of the infinitely small, "*Que fera-t-il donc, sinon d'apercevoir quelque apparence du milieu des choses, dans un désespoir éternel de*

connaître ni leur principe ni leur fin?" he says: "The idealism of the infinite is quite different from a mere check to the realism of the finite. Its meaning is to express the unlimited fecundity which modern science reveals in intelligence, and which enables us to define intellectualism, taken in its authentic meaning, as the philosophy of pure activity. Mind is that for which, in Spinoza's formula, all determination is negation, that which in Malebranche's formula, 'se sent toujours du mouvement pour aller plus loin'."

On the scientific side, the conclusion which Prof. Brunschvicg draws from his survey of three centuries of positive methods in science, is that in starting from space and time to construct causality, in going from the form to the ground, we get no more than movement, that is no more than the abstract and artificial scheme of the action. This at once suggests Bergson's doctrine that "notre intelligence, telle qu'elle sort des mains de la nature, a pour objet principal le solide inorganisé". Prof. Brunschvicg, however, finds a difficulty in accepting this theory of the intellect although he is in the fullest sympathy with the general direction of Bergson's thought. His objection is of peculiar interest because it seems to indicate at once the way in which Bergson's metaphysics accords with the relativist principle in science and the way in which that principle is determining the development of Bergson's doctrine. Most criticisms of Bergson's creative evolution have fastened on a certain inconsistency (apparent, whether real or not) due to his realistic attitude in science. Life is the fundamental reality, the vraie durée, and yet it appears dependent on some independently existing reality, for it requires the matter on which it will exert the creative power. In the theory of creative evolution it finds this in the inert matter of the physical universe. It achieves its results by humbling and insinuating itself, in order to turn back the descent which characterises the direction of the movement of matter. Yet on the other hand Bergson is equally insistent that the solid form of matter is imposed by the intellect, and that the intellect is a mode of life devised to frame the flowing reality, shaping it to accord with the practical form which action calls for. According to Prof. Brunschvicg this concept has its source in the philosophy of mathematics made classical by Kant in the Transcendental Aesthetic. "Là, en effet, avec le nombre entier et la géométrie euclidienne, le monde de la quantité apparaissait donné d'un coup, à jamais cristallisé dans des formes *a priori*." Mathematical physics, proceeding by deduction, requires the sacrifice of what experience reveals of the different and specific, of the perpetually mobile and the perpetually new; but we have now reached a point in the evolution of three centuries of human thought when it has become no longer possible to present the realism of quality as an alternative to the realism of quantity. The two realisms are mutually self-destructive, or rather, we should say, both have given place to an idealism in which mathematics is a supple and living instrument, infinitely plastic and marvellously fruitful, able to apprehend and actualise, at least for the intellect if not to the senses, those qualities which the infirmity of our bodily organism and of our perceptive powers would suffer to escape; and also able to give precision and delicacy to our knowledge of those qualities which come within the range of our ordinary perception, binding them together in the universal reality which conditions their becoming. So it is not, Prof. Brunschvicg would say, the intellect which is at fault, it is rather the representative imagination which wants to see a *thing* where there is only question of understanding a *relation*.

Prof. Brunschvicg's conclusion is that strictly speaking there is not and cannot be a philosophy of nature nor even a philosophy of science, the only philosophy is a philosophy of thought (de la pensée). The historical

survey, he tells us, does not present to us a finished picture of scientific achievement, distributed in channels whose course has been marked out in advance, satisfying our taste for symmetry or our mania for order. What it does present is totally different and yet unquestionably richer—the course of the thinking stream itself with its windings and sudden turnings, the placid pools, and the whirlpools and rapids, of its natural flow. Taken at any given moment, at the present epoch for example, human thought represents no more than a particular point in the rivers' course. Nature, thought of independently of the mind which knows, is an abstraction, and so likewise is science, thought of independently of its becoming. The very complicated curve which would be required to mark out in our present knowledge the configuration of our scientific universe is no more than a momentary cut in the chain which binds together mankind in one evolution. Other cuts would give different curves corresponding to the ideas which different generations have had of the universe.

Does a humanism of this form make science impossible and condemn us to subjectivism? That it does so is the charge which realism is always urging against idealism. If it was ever true of the old idealism it is certainly a wrong interpretation of the new, of the idealism which is based on modern psychology and critical reflexion. The universe which we know is not posterior to ourselves who know it. We know ourselves as individuals occupying a portion of space and living in time, only after having organised, and in organising, our visual and tactile impressions so as to give us a plurality of mobile objects against the successive backgrounds which govern our horizon; and we become conscious of ourselves only as one among these objects. Were we to be unsuccessful in imposing a reasonable order on the world which surrounds us, we should not be ourselves reasonable beings to ourselves. The universe of idealism is not therefore one which is dissolved in the subjectivity of the *individual* consciousness; it is that which is imposed on the *intellectual* consciousness, truth's judgment-seat.

Such is the general argument and conclusion of this exceptionally interesting and able historical treatise. I have given but an inadequate account of the richness of the material. Prof. Brunschvig is peculiarly at home in everything which concerns the great mathematical philosophers of the seventeenth century. One quotation which he has given from a letter of Descartes's (22nd August, 1634) is of curious interest in regard to present problems. It seems a direct anticipation of the actual experiment which has revolutionised modern scientific theory. "Si quelqu'un portant de nuit un flambeau à la main, et le faisant mouvoir, jette la vue sur un miroir éloigné de lui d'un quart de lieue, il pourra très aisément remarquer s'il sentira le mouvement qui se fait en sa main, auparavant de le voir par le moyen du miroir."

H. WILDON CARR.

The Misuse of Mind: A Study of Bergson's Attack on Intellectualism. By KARIN STEPHEN. With a Prefatory Letter by HENRI BERGSON. London: Kegan Paul, Trench, Trubner & Co., Ltd., 1922. Pp. 107.

It is not always that a philosopher finds an expositor for whose services he can be thankful without any reservation, and there are probably very few who have been as fortunate as Bergson is in the present instance. No philosopher has stood more in need of being saved from his friends. His work came just at the moment when every one was ready for a revolt against the confident rationalism of the nineteenth century, and probably many of those who talked most enthusiastically of Bergson were content

to know little more of him than that, somehow or other, he was the enemy of "intellectualism". One is reminded of the lady (so pleasantly imagined by M. Abel Hermant) who endowed a laboratory for the production of radium, because she had heard that the discovery of radium proved the bankruptcy of science—and it was impossible to be too grateful for the existence of "a metal so reactionary".

It is one of Mrs. Stephen's main objects to show that the Bergson of popular imagination is not the real Bergson. A first reading, she admits, may leave one with the feeling that his philosophy is "at once too persuasive and too vague, specious and unsatisfying"; but closer study reveals in him "a coherent theory of reality and a new and promising method of investigating it".

Although there already exist several able treatises on the Bergsonian philosophy, it is not too much to say that the present work will give many people quite a new impression of it. This is because the method of exposition adopted is as different as can be from Bergson's own method. Mrs. Stephen has so completely assimilated the spirit of her master that she is able to treat his ideas with perfect freedom. As he himself says in the note prefaced to the book, "*L'auteur . . . a pu ramener à l'unité, et présenter avec une grande rigueur logique, des vues que j'avais été obligé, en raison de ma méthode de recherche, d'isoler les unes des autres*". Such an achievement demands much more than a mere understanding of the original work; it demands a real freshness of thought, and a high measure of the power of exposition. As regards the last point, Mrs. Stephen writes so well that her book would be a pleasure to read apart altogether from the interest of the subject-matter. The apparent ease of the exposition conceals the considerable skill with which she has chosen her leading conceptions and built up her argument.

The whole argument of the essay is, one might say, severely empirical. Throughout, Mrs. Stephen is addressing herself to one main question: What is the nature of the fact with which we are confronted in immediate experience? The reply being that it is a piece of duration (the particular phrase used does not really matter, since description in words is impossible), two further questions remain, (a) why does the intelligence immediately proceed to describe and explain the fact in abstract terms, thereby falsifying it, and (b) how is it that after all we are able to make use with so much success of descriptions and explanations?

I shall not attempt to follow the unfolding of the argument; suffice it to say that the difficulties of the position are always faced frankly. Mrs. Stephen never takes refuge in vague phrases; if she has to use a metaphor, she takes care to point out first that she is about to employ one, and explains just how far it can carry us. Indeed one of the best parts of the work are those pages in which she makes it clear how (if Bergson's view of reality is correct) all attempts to describe the immediate facts in words must fail, and explains just what service words can render in the matter. Since words all stand for abstractions, there are really only two courses open to us if we wish to try to describe in words facts which are not abstractions. Either we can resort to metaphor, or we can use abstract terms, always taking care to point out that the logical implications of those terms are not true of the facts. Bergson himself usually chooses the first of these courses. Mrs. Stephen has chosen the second, and her scrupulous care in always pointing out, whenever she has used a word, that she does not really quite mean what she has said, effectually removes all chance of misunderstanding.

The treatment on those lines of the conceptions of "matter" and "memory" is particularly interesting. There are none of those adventurous excursions into what one might call the realm of mythology with

which Bergson has enlivened his pages; we hear nothing about the effort of spirit to introduce freedom into matter. Mrs. Stephen never wanders far from her problem, What is the nature of the facts we immediately experience? and in her pages "matter" and "memory" are only two complementary abstract terms which she employs in the attempt to describe those immediately given facts.

It is unnecessary to discuss the question whether Mrs. Stephen's presentment of Bergson's philosophy is a thoroughly faithful one. No one can be so well qualified to decide as Bergson himself, and he appears to have no doubt on the matter. Nor is this the place to undertake a re-valuation of that philosophy. I shall mention only one point which has struck me in connexion with the present book.

Somehow, when stripped of the clothing of metaphor in which its author chose to convey his thought, a good deal of the Bergsonian attack on intellectualism appears less startlingly novel than it did when it first came within the view of the English philosophical public. It would be going too far, of course, to say as some have done that Bergsonianism is only one of the many possible variants of idealism or absolutism, that its account of the ultimate nature of reality and of the way in which that reality transcends relational thought differs more in terminology than in substance from the account of Plotinus or the account of Bradley. No doubt Bergson's insistence on change as being of the very essence of reality does strike a new note; though even here it would surely be a mistake to suppose that when a Neo-Platonic mystic talks of God as unchanging he means merely static—and is a "timeless activity" so very different from a "durée" in which past and present are not real distinctions? But it is not so much of parallels like these that I am thinking; the resemblance comes out at least as strongly when we confine ourselves within the limits which the authoress has chosen, and talk of nothing more transcendental than the nature of immediate experience.

It is evident I think that when Mrs. Stephen talks of the logical or abstract way of dealing with reality, the kind of theory which she has mostly in mind is something akin to the New Realism. Constantly she offers to us the alternatives, either a universe of real duration or a universe of "mutually exclusive terms joined by external relations". In Bergson's own exposition the second alternative is scarcely defined so sharply as it is in his disciple's. The technical terms of the New Realism seem to flow naturally from her pen. For this very reason a realist might be inclined to accord to Mrs. Stephen's arguments a closer attention than to those of Bergson himself—it is more difficult to ignore criticisms expressed in one's own language than criticisms expressed in some other language.

But a realist approaching in this spirit Mrs. Stephen's attack on logical abstraction will find stealing over him as he reads a feeling that he has met attacks rather like this before. And when he comes on a passage such as that on page 83, "Abstraction involves falsification and so the little fragment of fact to which our attention is usually confined is not, as it stands, reality: it is appearance. We should only know reality as it is if we could replace this fragment in its proper context in the whole field of virtual knowledge (or reality) where it belongs"—when he comes on such a passage the very language seems to take him back to a day before Bergson (or the New Realism either for that matter) was ever heard of.

Of course there is more than this in Bergson, and in Mrs. Stephen also. I have deliberately chosen a passage in which she seems to come nearest to Idealism, a passage in which what she says appears least original; and therefore not a typical passage. I have already, I hope, made it clear that her book is as far as possible from being a mere echo

of any other writer, even of her own master Bergson. It is, on the contrary, singularly individual in the manner of writing.

In the body of the work I have noticed only one misprint—in line 7, page 67. Unfortunately the same standard of accuracy has not been preserved in the printing of Bergson's prefatory letter. *Ce qui* should be *ce que*, and *fundamentales* has been substituted for *fondamentales*.

ALAN DORWARD.

Space, Time, Matter. By HERMANN WEYL. Translated by HENRY L. BROSE. Methuen. 18s. net.

The term "relativity" has come within the last few years to be applied not only to the purely physical theory developed by Einstein and his followers, but to a philosophical system allied to monadism. The resulting confusion of thought has led some philosophers to think that the success of the physical theory in some way confirms one or other philosophical theory. This is not the case: there is no self-consistent philosophical system that is not completely consistent with the theory of relativity as stated by Einstein himself, or indeed with any scientific theory whatever, true or false. Any philosophical interpretation of the theory is, in fact, an extraneous addition to the theory itself, made in accordance with the metaphysical attitude of the writer making it; the opinion of no scientific man concerning the theory itself need be determined by his acceptance or rejection of the metaphysical additions.

Realisation of the essential independence of science and metaphysics led Ernst Mach and Karl Pearson independently to formulate closely similar theories of scientific knowledge that would as far as possible eliminate metaphysics. Complete elimination of *a priori* beliefs is impossible, since many logical principles (largely relating to classes and their properties) must be used in any case. Nevertheless these writers showed that a very large number of the unanalysed notions of contemporary science could be eliminated, or else defined in terms of more easily intelligible concepts. Realising that all empirical knowledge depends ultimately on our senses, they took sensations as their ultimate data, and specified the function of science as the description and classification of sensations in the most economical way. A concept is valuable in science (and in everyday life) if it facilitates such classification, and the only meaning attached to the "reality" of any concept in scientific work is that it is valuable in this way. This description achieved, descriptive science has no further function, and requires no ideas whatever beyond sense-experience and the principles of classification.

Such description is, however, not the sole function of science. It can cover only actual experience, and has no direct application to inferences regarding sensations not yet experienced. Now inference is one of the most important functions of science, and it is indeed from the possibilities of inference that it opens up that science derives most of its interest. We cannot, however, pass directly from our past experience to any inference regarding future experience without certain principles of probability, which are not required in purely descriptive science.

The only reason given by Mach and Pearson for the invariable practice of adopting the simplest laws that cover the known facts is that this procedure enables us to describe them in the most economical way. When the theory of inference is considered, a further and much more important reason is discovered. The number of laws that would fit any given set of facts is always infinite. It has been pointed out by Dr. Dorothy Wrinch and the reviewer (*Phil. Mag.*, Nov. 1921, pp. 369-390) that

if the simplest law was selected for the sake of convenience alone, we could not attach the high probabilities we actually do to quantitative inferences from simple laws. In fact we attach a specially high prior probability to the simplest law, and it is for this reason that, when simple laws have been frequently verified, the probabilities of inferences from them approach certainty so closely. Accordingly the current practice rests on much more important foundations than mere convenience, and to this extent the system of Mach and Pearson has gained in security since it was first formulated.

But the discovery of laws and the making of inferences from them do not exhaust the domain of science: for this also includes hypotheses. In a new hypothesis, some new relation may be postulated between concepts already established in science, or concepts with no previous scientific status may be introduced. Hypotheses belonging to the second class acquire scientific interest when the laws found to hold between the newly introduced concepts resemble in formal character the laws already known to hold between concepts of scientific status. To deduce from this fact that the hypothetical and the scientific concepts are identical is a mistake frequently made. To identify two things because they have some of their properties in common is like saying that heat is the same as water vapour because the equations of diffusion and heat conduction are identical. We can be, and often are, enabled by such resemblances of properties to assign high probabilities to the possession in common of still more properties by a new concept and by concepts already established in scientific knowledge.¹ There is no limit to the number and complexity of the hypothetical entities and the relations between them that we are at liberty to consider; but there is a limit to those that are worth considering in science, for it is of no use to adopt hypotheses that suggest no laws that cannot be inferred from laws already known. Expressing this loosely, we may say that it is useless to adopt hypotheses exceeding in number the laws they are intended to correlate. For instance, the kinetic theory of gases accounts for the laws of Boyle and Charles only when we introduce the extraneous assumption that the mean energy per degree of freedom is proportional to the measured absolute temperature. Thus two hypotheses are needed to account for two laws, and up to this point the theory is only of mathematical interest. It acquires physical interest when it is shown that the laws of heat conduction, viscosity, and diffusion can be included in the theory without further hypotheses.

The history of the theory of relativity provides examples of every one of these stages of scientific development. Newton's dynamics supposed all motion to be referable to some standard system of rectangular co-ordinates; but when his theory was examined closely, it was readily seen that his laws could be expressed as differential equations involving only differences between his co-ordinates and not their absolute values. Further, such differences between the co-ordinates were in fact all that could be measured. Thus Newton's dynamics, so far as it was verifiable, concerned only relative, and not absolute, position and motion. This proposition is called the "principle of relativity". The notion of absolute position remained perfectly consistent with the Newtonian system: it merely does not arise in the description of experience or the inference of new experience. It might, however, have happened that some phenomenon, not purely dynamical, would be found to satisfy laws of a specially simple kind when referred to some particular system of rectangular co-ordinates, and many attempts to find such a phenomenon were made, but without success.

¹ Cf. Dr. D. Wrinch in *Proc. Arist. Soc.*, 1919-20.

In Newton's theory, a body moving with infinite velocity with reference to one set of co-ordinates is moving with infinite velocity with reference to any other set. This is a physical proposition, capable of being tested by physical methods. The startling result of the experiment of Michelson and Morley was that there was such an invariant velocity, but that instead of being infinite, it was the velocity of light. Thus physicists were faced with the task of modifying Newton's dynamics so as to maintain the principle of relativity and reconcile it with the invariance of the velocity of light. There was nothing new in the principle of relativity itself, which is as old as Newton: the novelty of Einstein's special theory was that it carried out this reconciliation. Further, it was by far the simplest theory that could achieve it. The general theory involves a further mathematical hypothesis that cannot be expressed in non-technical language. The present position of the problem is that the general theory is the simplest that fits all the facts, both dynamical, optical, and electrical. This is all that is meant when we speak of a physical law as true, and the status of the general theory is therefore that of a true law.

The further extension made by Weyl suggests that if indistinguishable measuring instruments are carried about in two different ways to arrive at the same place at the same moment, they will differ when compared again. He shows that by a certain development of this hypothesis he can find functions that satisfy conditions formally identical with the electro-magnetic field equations. The number of hypotheses made on the way, however, appears to be at least as great as that of the laws co-ordinated, and therefore it appears to the reviewer to be only an interesting formal property of the electromagnetic field equations; it is not a valuable hypothesis because it suggests no more laws than it postulates.

The book under review contains a complete account of the mathematics of the theory of relativity, developed on geometrical lines. It is recommended on the wrapper as "enabling the physicist of limited mathematical attainments to grasp the details of Einstein's theory," but this statement is scarcely correct, since the mathematics is long and difficult, and for the most part expressed in an extremely condensed form. From the point of view of scientific method it suffers from several faults. The geometrical method of presentation puts the whole into the form of a hypothesis, and it is extraordinarily difficult to ascertain from the text to what extent any part of the theory fulfils the necessary characteristics of a scientific law. Further, the book is full of statements, presented as striking physical results, which actually amount only to slight restatements of what we knew already. The presentation of the physical evidence for the theory is very incomplete, and there is no hint of its present scientific status. This feature is common to all textbooks of relativity, but is possessed to an unusual extent by this one. In short, the book is to be recommended as differential geometry, but not as physics nor as an example of scientific method.

HAROLD JEFFREYS.

La Religion et La Foi. By HENRI DELACROIX. Paris: Librairie Félix Alcan, 1921. Pp. xii, 462.

This solid work on the psychology of religion, by an author to whom we owe a more than usually valuable study of mysticism, is not unworthy to stand beside the captivating Giffords of James. It is written in a style more compressed and (so to say) granular, than we are accustomed to in French, with the result that it is packed very full indeed of research and interpretation and original theory, all set out in a wholly impartial

spirit. Not that anyone can be quite impartial when writing about religion, even in the rôle of a psychologist. Also from time to time it is difficult to be sure whether M. Delacroix is speaking in *propria persona* or is reporting on a particular type of opinion. When, *e.g.*, on page 128, he writes: "Not the content of faith imposes it, but at first exterior testimony," it is true enough that here and elsewhere he is, technically, giving an account of mediæval Roman thought, and so far he undoubtedly is within his rights. But I have felt more than once in perusing his masterly work as if the suggestion were being made that the mediæval way of thinking about faith is the classic way, and that to think otherwise could only be the result of ignoring the rules of the game. Perhaps this merely inductive, and, as it were, statistical manner of settling what faith really is can hardly be avoided by one who occupies the psychological point of view, but it does help to remind us that psychology is only an abstraction after all.

The book is divided into three parts. Part I. treats of implicit faith, reasoning faith, and trust (*fiducia*); Part II. of mystic certitude, prophetic inspiration, and fanaticism; Part III. of conversion and doubt. It will be seen that the bill of fare is crowded with promising items, and that the range of interest is wide but not too wide. At the end a chapter is given to conclusions and prognostications.

Reminding us that his work is a study of the manner of believing, not of beliefs, M. Delacroix begins with an analysis of implicit or collective faith, a type found in many other religions than Catholicism; it has been called authority-faith. When implicit faith becomes aware of the value of the received authority, it is on the point of modifying its character. We come upon subtle and informing accounts of such things as religious realism and the symbolism of faith, illustrated now from primitive worships, now from the mystery cults of the Hellenistic period, now from ancient or modern Christianity. There is, too, an admirable section on the psychology of the religious crowd, particularly with regard to its teleological unity; for it is animated by a single purpose. The various forms of ecstatic worship are vividly set out. All this, and indeed the whole exposition, is fully documented.

In the next chapter M. Delacroix dwells on the oscillation in faith between rationalism and irrationalism, as when in Catholic theology it is held both that mysteries are beyond reason and that none the less there are analogies in reason which enable us to understand up to a point. (This term "irrational" threatens to become fashionable in studies of religion, but in fact it is not a happy one; what is really meant is that in specifically religious experience we have to do with values other than purely logical values, so that with equal justice and equal infelicity we might apply it to the experiences of morality and art.)¹ It is an acute observation (p. 112), that in religion the sense of mystery grows and becomes definite in proportion to the growth of our knowledge of ourselves and the world; so far from disappearing in the presence of science, it is felt to be more vital than ever. St. Thomas' teaching on faith is usefully summarised. A few good pages are given to the relations, in Catholic doctrine, between the self-evidence of testimony and the authority of the witness. Perhaps the writer might with benefit have raised the question how far faith in God is (or is felt to be) analogous to faith in friends. I have found him less illuminating than I had hoped on the difficult point how Catholic thought passes from the alleged rationally proved truth that God

¹ Besides, why call that "irrational" which in the judgment of its adherents alone imparts *meaning*, in the ultimate sense, to human life and history?

exists to the "proved" truth that He has revealed this or that doctrine. And in an all-round discussion of the intellectual conditions of faith it is odd to find not a word said about the immensely significant debate carried on by post-Kantian Protestant theology, above all in the thirty years covered by the Ritschlian movement. This probably accounts for the writer's failure—it seems the great omission of his book—to inquire into the relations of faith and history. I do not mean the question whether revelation can actually be given through history, and whether such a revelation has been given: that is beyond his task as a psychologist. But there are great psychological questions which relate to the normally felt dependence of faith on historical persons and events, not on moral or metaphysical generalisations; and a full treatment of this matter would have been welcome. It is surely worth while to ask how what goes on in the mind of one to whom the Founder of Christianity is at once necessary and self-authenticating differs from what goes on in the mind of a characteristic mystic, for whom "these things never happened, because they are happening all the time". What are the conditions, what is the quality, of that vital interest in the historical personality which is felt in the one case, but not in the other?

Delicate shades in rationalism, and various proportions in which it may be combined with self-surrender to an infinite object, are brought out with fine and sure touch. There has always been a "rationalistic" strain in Christianity, and in a sense Scholasticism is the great proof. "It is the supreme effort on the part of the religious mind to take full cognisance of all the theses implied in religion and all the intellectual conditions it must satisfy" (p. 183).

M. Delacroix includes a brief chapter on the symbolo-fideist movement led by Sabatier and Ménégoz, but his perceptions in this region are rather less trustworthy. He speaks of it as circling round "a kind of pious sensation which awakens faith, keeping it always fresh and always vague". This quite ignores Sabatier's view of revelation, still more that of Ménégoz. And it is a particularly unfortunate suggestion that symbolo-fideism has its ancient analogue in the allegorical interpretations of Stoicism. Stoicism knew nothing of a historical mediator on whom everything turned in the relations of God and man, but just such a mediator is crucial for the thought of the Paris school. We must not look for too much at this point from a critic who can say (p. 224) that "in the subjective thought of fideism, the believer's spirit is directly the Spirit itself," and that for it "beliefs are produced by sentiments, the sentiments are the supreme reality".

As might be supposed, the chapter on mystic certitude is a notably fresh and lucid piece of work, which could be fitly criticised by no one but a rival master of the subject. Mysticism in its many forms and hues is nowhere better displayed with brevity. Ecstasy is a quest of the indistinct, while yet at the same time the mystic has the feeling that he is comprehending the mysteries intellectually. Apparently in itself mysticism is fairly indifferent to morality, and moral action is not so much a result of ecstasy as a revulsion from it; or, it may be, derives from other sources. The close tie often existing between mysticism and music is commented on.

It is rightly pointed out that two types of prophecy are known: the ecstatic and the reasoning. Much that is good is said about the mental and oral mechanism of prophecy, but insufficient emphasis, it seems to me, is laid on the moral distinctions between the "false" prophet and the "true". He who told the people "smooth things" was repudiated by prophetic minds of the higher type. In this account of the working of "grace" in inspiration, too little attention is paid to ethical points of

attachment in the mind alike of the prophet and of those to whom he spoke. Here, as always, religion is *sui generis*, yet its progress can be measured by deepening moralisation.

I can do no more than call attention to a specially good treatment of fanaticism, and to a scrupulously fair and full study of conversion which is held to confirm the results obtained in the earlier parts of the book. It is well observed that the idea of conversion—what it is and the conditions of it—varies with the idea of grace. Students of the modern French mind ought not to leave unread what M. Delacroix has written on the spiritual history of Claudel, Jammes, and most of all Psichari. A similar study of the progress of doubt in the individual mind is remarkable for a few absorbing pages about Hyacinthe Loyson. One comes to trust the writer's judgment. His criticism of the theory which derives religion straight from feeling *per se* is sound, but he misses the point, brought out convincingly by recent scholars, that in Schleiermacher *Gefühl* is a mode of apprehension, to which reality is *given*. With cautious wisdom he calls the subconscious "one of the conditions of religion," and will not be tied down to any single law of the connexion between myth and ritual. Near the close there is given an exceedingly able psychological analysis of the evolution of dogma.

Why do French writers so often issue their books without an index? In a work like this, its absence is a grave defect which is in no sense balanced by a not over full table of contents. We should readily exchange for it the long list of cited authors, most of whom are anyhow quoted with bibliographical detail in the notes. In these last, no reference is made to Otto's *Das Heilige*, the most important German book on religion for years.

One cannot close this very fine book without asking whether somewhere or other the limits of the psychological point of view ought not to have been signalled. The standpoint of psychology, which must regard the human mind as moving simply within itself, is not that of faith. In short, can psychology give an exhaustive interpretation of faith, any more than of free moral action?

H. R. MACKINTOSH.

Un Romantisme Utilitaire, Étude sur le mouvement pragmatiste, Vol. III.
By RENÉ BERTHELOT. Paris: F. Alcan, 1922. Pp. 428.

This is the third volume of a work of which the first came out in 1911, and was reviewed by me in No. 82. The first volume dealt with Poincaré and Nietzsche, the second was devoted to Bergson, while the third, which appears to be intended as the conclusion, is concerned with 'religious pragmatism in William James and the Catholic modernists,' meaning specifically Loisy, Le Roy, and especially, Tyrrell—who, as before, is systematically spelt 'Tyrrel'. Pascal is, strangely, omitted; but there is an appendix on the 'Catholic Nietzschean,' G. K. Chesterton! It is a little unfortunate that so extensive and elaborate a study should have been vitiated at the outset by a theory of its subject, and a method of composition, which render it almost impossible for M. Berthelot to carry conviction. He began with a notion of pragmatism so vague that it seemed to him apposite to label it 'utilitarian romanticism'. Now this was a signal case of defining *obscurum per obscurius*. 'Pragmatism' is notoriously used ambiguously, like all philosophic terms, especially by its opponents. The reason is simple; it is a 'blanket' term for describing collectively a number of spontaneous tendencies and philosophic doctrines which have something in common, but are capable, and in need, of being distinguished. M. Berthelot's formula, however, does not improve matters, for it, too, is

vague and ambiguous. 'Romanticism' is much the same sort of term as 'pragmatism,' only more so, while 'utilitarian' is a meaningless misnomer, unless, and until, it is elucidated by stating the ends for which the 'utilities' referred to are supposed to be means. M. Berthelot, however, nowhere explains precisely what his label means, though he is constantly suggesting that for him 'romanticism' means the German literary movement, and 'utilitarian' the English form of hedonism, so denominated. It is no wonder, therefore, that he applies his label to doctrines which are not strictly pragmatism at all, like Nietzsche's, and are more akin to Vaihinger's philosophy of 'fictions'. And as he got deeper into his subject, it became manifest that there were forms of pragmatism to which his formula did not apply, *e.g.*, Dewey's and Sidgwick's. These, therefore, had to be omitted. But it is really quite as arbitrary to call James a 'romantic' (in M. Berthelot's sense) because he expresses sympathy with the 'romantic' (*i.e.*, personal) interpretation of the course of events.

As regards method, M. Berthelot's exposition proceeds on the assumption that philosophies are products of the severest inbreeding. Every later philosophy is traced to the 'influence' of one or more earlier, and nothing is allowed for originality, or personal idiosyncrasy, or cross-fertilisation by scientific and vital problems, although in the present volume he makes some use of biographical material in the case of James and of Tyrrell. 'Influence,' moreover, is always taken as attraction, although it is plain that many ideas take shape under the influence rather of repulsion and revolt. The result of his excessive devotion to tracing influences is that M. Berthelot always seems more interested in the roots than in the fruits of a philosophy, and often starts at such a distance from his point that he never gets to it effectively. For when, after grubbing endlessly among the roots, he emerges face to face with the man he is studying, he too often fails to recognise his most salient features. For example, he discusses at great length the influence which his father's Swedenborgianism, Emerson, and Carlyle—also a 'utilitarian romantic'! (p. 23)—may have had on the origin of James's pragmatism; but he has nothing to say about the more obvious and avowed influence of Chauncey Wright and C. S. Peirce, entirely fails to see the fundamental difference between James's psychology and Associationism, and is blind to his revolt against Spencerian naturalism. But then he has not, apparently, used James's *Letters*, which came out in 1920.

Other defects in M. Berthelot's method are due to tendencies to allege inconsistency where he has failed to apprehend a connexion, to make distinctions and to base on them charges of 'ambiguity,' without showing that they affect and vitiate the argument, and to neglect to clinch a criticism by direct quotations or references. The result is that what might have been an illuminating criticism becomes a work which even the enemies of pragmatism will have to use with caution.

M. Berthelot begins his attack on James's pragmatism by observing that James uses it in three senses, (1) for the method of testing 'truths' by consequences, (2) for the theory of knowledge which makes it aim at satisfaction, (3) for a pluralistic metaphysic or religion. But the first of these senses does not necessitate the second, nor the second the third (p. 71). The first sense, moreover, is ambiguous, as the 'consequences' concerned may be purely theoretic, experimental, or 'practical' (*i.e.*, material, social or moral). In the second sense the statement that truth is a value or an end means no more than that it is an ideal, and has no special relation with pragmatism. Moreover, values are irreducibly different and may conflict with each other. Hence pragmatism is merely a confusion (p. 152). As a metaphysic or religion, also, pragmatism confuses an 'experimentalism' and a 'moralism'. But its confusion is not great and

fertile, like that of Hegelian thought (p. 186). Nevertheless, M. Berthelot finally admits that pragmatism has been a valuable ferment (p. 397). It has produced a number of ingenious and penetrating theories, and kept closer to the scientific movement and the movement of moral ideas than the traditional philosophy, which was sinking into mere erudition. Nor should it be regarded as philosophic Americanism, for it has shown more strength and originality in Europe (p. 395).

M. Berthelot's attack on 'modernism' as an apologetic for Catholicism extends over 200 pages, more than half of which are devoted to Tyrrell (and his 'roots'). Though an anti-clerical himself, he labours to show that no pragmatism can serve the purpose of Catholic apologetic, because it can never show that Catholicism is the *only* religion which 'works'. To which a Catholic pragmatist would presumably reply that it was enough to show that Catholicism worked *better* than any alternative.

This objection, however, reveals how far M. Berthelot is from understanding pragmatism. He has never penetrated to its core, probably because he has never observed man's natural pragmatism, of which philosophic pragmatism gives the *rationale*. Religious pragmatism is an excellent example. All religions are spontaneously and unconsciously pragmatic, even though their theologians may theoretically denounce the pragmatism they practice in their devotions. For all religions spring from spiritual needs, and commend and authenticate themselves by appealing to the excellence of the consequences of accepting them. James's epoch-making discovery was simply the observation of this fact. Religion is a general and important psychological fact. But this observation was not merely the foundation of a new science, the psychology of religion; it was also a challenge to the old logic. Could it safely be assumed henceforth that this psychological fact was devoid of logical significance? And if not, how precisely could the truth-value of religion be correlated with its psychological urgency? Men are still far from agreement on the answers to these questions, and perhaps the reason is not merely that the questions are so new. Yet conscious pragmatism is as great a novelty as ever disturbed the complacent somnolence of an erudite tradition. It bobs up everywhere, and seems to be hydra-headed. But its various heads all belong to the same monster. M. Berthelot has not encountered them all. He has omitted, *e.g.*, the very fundamental sense in which pragmatism is a theory of *meaning*, and insists on the desirability of securing a definite meaning as a preliminary to philosophic discussion. Yet meaning is prior to truth, as even formal logic is being driven to admit. Pragmatism, moreover, can easily pass from meaning to truth, and from truth to metaphysics, and if the attraction of human interest is intense enough, there is no reason why it should be driven by logical necessitation. A train of real thinking, as opposed to a verbal concatenation of 'propositions,' is never impelled by any absolute necessity, but always picks its way among alternatives. If, then, in pragmatism, one of its doctrines can intelligibly lead to another, and if all can appeal to the same method, that of empirical testing by 'consequences,' and can repudiate dumb 'intuitions' and brute 'necessities of thought,' it makes as good a 'system' as any. M. Berthelot's 'ambiguities' therefore, are harmless, because irrelevant. They do not vitiate an argument which holds of *all* the senses he distinguishes. It is similarly futile to object that 'experimentalism' and 'moralism' are not the same. They are not; but they are connected. It is the moral need for supernatural support that drives men into experimenting with religions. It is true also that their desires, their demands, their values, and their ends are not identical; they can, and do, conflict. But their very conflicts prove that they have common ground to fight over, and all conflicts are decided by the same criterion, the value of the

consequences, as judged by those who have experienced them. For all agree that of alternatives they must always choose the *best*: hence inferior 'truths' are doomed to sink into 'errors,' as better values become available. But this process is not, as M. Berthelot thinks, the destruction of truth; it gives a real meaning to a term that has hitherto been an empty abstraction.

F. C. S. SCHILLER.

Études de Philosophie Médiévale. By ÉTIENNE GILSON. Strasbourg, 1921. Pp. vii, 291. (English agents, H. Milford, Oxford University Press.)

Prof. Gilson's volume of studies, which concerns itself principally with the great figures of St. Thomas and Descartes, is an admirable proof of the real continuity of European thought and the arbitrariness of the dividing lines commonly drawn between the "medieval" and the modern. In the first paragraph of the *Preface* we read that "St. Thomas is the first modern philosopher in the full sense of the word". That is, he is the first "western" (after the rise of Christianity, I presume), whose thought is not in bondage to a dogma or a system of dogmas. The four essays which make up the first half of the book are devoted to the exposition of this thesis. In the first of the four, *Le sens du rationalisme chrétien*, a lucid account is given of the point of view of those writers of the early middle ages, notably Scotus Erigena and Anselm, who are often regarded erroneously as "rationalists" in some modern sense because of their anxiety to find an intellectual justification for the whole content of Christian dogma. The point to be made is that their "rationalism" is a point of view which even the most orthodox of our own day have lost and need to recover with some difficulty before we can understand them. Our difficulty, as M. Gilson says (and the same thing would be true of our difficulty in dealing with early Greek thought), arises from our inability to forget so much that we know. What we forget, in particular, is that before the time of Albertus Magnus and his pupil Thomas, a Christian "philosopher" had no conception of what we call "nature" as an independent object of study in its own right. Erigena or Anselm starts with the assumption that the proper object of all true *scientia* is God, the "absolutely perfect being". Now there are two ways of ascending to the knowledge of God; one is from the revelation of Him by His shadow, the visible world, the other is from His infallible utterances in the Scriptures, on which the faith of the Church is founded, and the two revelations, being revelations of the same God, must be concordant, when they are rightly understood. But Scripture speaks throughout in symbol and metaphor, and its true sense is not apparent. The visible world is also a system of symbols of the same divine reality, and these symbols, read aright, are the key to the "true sense" of Scripture. We begin by believing Scripture true as a matter of faith; what the truth it reveals is, we have to discover by the use of intelligence. Hence the so-called rationalism of an Anselm means simply the employment of the intellect in exhibiting the complete concordance of the two systems of symbols, those of the visible world, and those of Scripture. This is what is meant by the watchword *fides quaerens intellectum*.

The object of such a rationalism is simply to show that the faith which we begin by believing as wholly and absolutely true is also the real meaning of the symbolism of nature. We do not believe the Faith because we have established this result, we feel the duty of establishing it because we are already aware of the absolute truth of the Faith. The second and third studies develop the difficulties which beset a conception of this

kind. The second, *La servante de la théologie*, deals with the definite programme the Popes had set before themselves in encouraging the organisation of the University of Paris as a single centre of higher study for Christendom. The intention was that the "liberal arts" were to be studied just so far as they could be enlisted in the service of Christian theology and no further. The irony of history lies in the development by which this very institution became permeated by the spirit of devotion to the pursuit of "philosophy" for its own sake, the study of "nature" on its own account, not as a mere collection of symbols of theological truths. In the third essay, *La doctrine de la double vérité*, we study the way in which this pursuit of natural knowledge on its own account, under the guidance of Averroes and Avicenna, leads to a final breakdown of the earlier conception of the two concordant revelations; "philosophy," no longer the *ancilla theologiae*, seems to point to the explicit denial of the cardinal doctrines of all theology.

It is an interesting and important thesis of M. Gilson that the Averroists, Siger of Brabant and the rest, have generally been misconceived. The doctrine of the "double truth" was never formally asserted by them, but was urged by their adversaries as the logical outcome of their position. Their own protestations that they honestly believed the dogmas of the Faith was in most cases probably sincere.

With the fourth essay, *La signification historique du thomisme*, we reach the central thesis of M. Gilson's book. Albertus Magnus and Thomas mark a new era in philosophical thought precisely because they have fully rediscovered nature as an independent object of study on her own account. They represent a final breach with the Augustinian tradition which lies at the bottom of the earlier so-called "rationalism," and is itself derived, in the end, from the doctrine of *ἀνάγκη* in the *Phaedo*. At bottom the older "rationalism" is based on the Augustinian *a priorism* according to which sense is not really a source of knowledge at all. Even in sense-perception, according to the Augustinian doctrine, sensations are, as in the *Phaedo*, mere occasions for the mind to turn to the contemplation of "ideas" it already possesses. It is, strictly speaking, God who, as the light of the intellect, directly furnishes us with all natural knowledge, just as it is God who directly illumines the mind to believe supernatural truth. Albert and Thomas break wholly with this view of knowledge when, following the lead of Aristotle, they reject every vestige of "innate ideas," and leave the mind, apart from the special workings of supernatural grace, nothing more than a "natural light" which amounts only to a capacity for extracting "universals" from the particulars of sense. This entails fateful consequences for both theology and science. In theology it leads to the sharp distinction between such natural knowledge of God as can be got by reasoning analogically from the effect, the empirical world of nature, to its cause, and the "mysteries of the Faith," which must be believed, but are wholly incapable of any kind of philosophical proof. In philosophy it leads to the recognition of the world of nature as the one proper object of human science. The philosophy of Thomas is thus not what it has sometimes been called, an "apologetic". Thomas goes further than the Averroists themselves in readiness to insist on the impossibility of establishing the dogmas of religion by reason; to attempt the task, according to him, is to expose the truths of religion to the mockery of the unbelieving, who will suppose that the sophistical reasons the apologist puts forward are the real ground on which he believes. The task of apologetics consequently becomes the modest one of merely showing that the "infidel's" objections to a dogma have no conclusive force. In philosophy, the consequence is that the natural world is made

over to us as a sphere for free and independent study; Thomas has rediscovered nature, and that is the justification for carrying back the history of "modern" philosophy to him. M. Gilson rightly dwells on the point that the Thomist doctrine was honestly felt by the adherents of the traditional Augustinianism to be fraught with the gravest danger to religion, inasmuch as it seemed to make God almost inaccessible to our understanding, and says with as much wit as truth that Thomas was the greatest of "modernists," the one "modernist" who has really succeeded.

After a brief but fascinating study of Campanella as a typical example of the intellectual ferment of the end of the sixteenth century, we pass to three essays dealing with Descartes. The chief of them, which, with the essay on the place of Thomism in history, stands out as central in the whole volume, deals with *l'innéisme cartésien et la théologie*. It is a piece of work which no serious student of Descartes can afford to neglect. M. Gilson first makes it clear that the central interest of Descartes throughout lay in working out a doctrine of Physics on a mathematical basis. This, of course, entailed a breach with Thomism; the doctrine of "clear and distinct ideas," required to justify the central position given to mathematics, is largely a return to something like the Augustinian tradition and the reversion from Thomism has to be justified. The question then arises, what earlier influences may have been at work in helping to put Descartes on this line of thought, and it is shown that we must look for the answer chiefly to Augustinian features in the doctrine of Suarez, which Descartes would imbibe at La Flèche, and to similar tendencies in the group of divines and others who formed his society in early life, e.g., in his friend Mersenne. This important study is followed by an admirable essay, *Descartes, Harvey et la scolastique*, in which the exact extent to which Descartes' doctrine of the circulation of the blood agrees with Harvey, and the precise points in which scholastic influences lead him to defend an ancient error, are luminously explained. The book ends with an essay which in the same way treats with careful detail the points of contact and of divergence between Descartes' *Météores* and the treatment of the same subject by contemporary followers of the school tradition. An excellent remark on Descartes' peculiar bent of mind, for which these two studies give occasion, is that Descartes' indifference to experiment, except where it serves to substantiate a deduction from his "clear and distinct" premisses, is such that he is equally ready to use his premisses to "explain" real facts and to explain "facts" which do not exist at all (e.g., the falsely alleged dilatation of the heart at the moment when it "beats"). The whole volume is written with the clarity characteristic of the best French work, and fully documented in the most careful manner.

A. E. TAYLOR.

La Mentalité Primitive. Par L. LÉVY-BRUHL, Membre de l'Institut, Professeur à la Sorbonne. Paris: Librairie Félix Alcan, 1922. Prix 25 fr. net. Pp. iii + 537.

This book admirably illustrates the anecdotal style in ethnology. To anyone who likes to read masses of traveller's tales, for the most part torn from their proper setting, and strung together on a somewhat thin thread of theory, Lévy-Bruhl's new work presents material of absorbing interest. To others it may appear very long drawn-out, and even dull. The general thesis has already been expounded in the same author's book entitled *Les fonctions mentales dans les sociétés inférieures*. It is to the effect that the primitive man's ways of thinking are wholly different from ours. Again

and again the author speaks of the thinking which proceeds in the early periods of social development, as "mystical," "prelogical," not answerable to any of the ordinary rules which he believes govern our own thinking. In the present treatise he develops this hypothesis with particular reference to the primitive notions of causality. He shows how the savage tends to attribute multitudes of daily happenings directly to the operation of powers which we regard as "mystical and occult". He illustrates this tendency in regard to illness, death, dreams, omens, divinatory practices, rites of ordeal, and the interpretation of accidents, misfortunes and success. He displays the same tendency at work in the common primitive attitude towards a conquering white race, and towards the novelties which the conquerors bring with them. He makes a number of very interesting observations with respect to what he calls "*Le misonéisme dans les sociétés inférieures*," dealing with the way in which the savage reacts to new customs and ideas, and with how the novel, if it is accepted at all, undergoes change. He writes a special chapter on primitive people and modern notions of medicine. Finally he sums up the whole of his treatment by asserting at the end, as at the beginning, that "*la mentalité primitive est essentiellement mystique*".

It is pretty clear that by "mystical" Lévy-Bruhl does not mean merely confused and difficult to understand, although he certainly believes that primitive mentality merits these terms of description. And he does not mean merely that there is an unusual readiness to attribute events to the direct operation of spirits. He does genuinely believe that primitive thought is bound by different rules from those which govern ours. In particular we, he holds, are dominated by the law of contradiction, but the savage breaks this law continually and most happily, because another rule cuts right across the law of contradiction, i.e. the law of participation. Our rule says that a thing cannot be something and not be that thing at the same time and in the same sense. But the rule of the savage, says Lévy-Bruhl, considers not simply that such a state of affairs is possible, but that it is just what happens most commonly of all.

Consider, says the author, how the primitive man looks upon sudden death, a fact of which he has abundant experience. Such death may be "caused," as we might say, by a wild animal; and he recounts a large number of cases in which the apparent agent is a crocodile. But the primitive man says that both the crocodile and a sorcerer are responsible. It is not that they merely work in conjunction, but that the one is the other, and yet at the same time is *different from* the other. Lévy-Bruhl finds it exceedingly difficult to understand how the primitive understanding can work in such cases. "Their thought," he asserts, as he considers his illustrations, "is not subject to the same logical necessities as ours. It is ruled, in this instance as in many others, by the law of participation. There is set up between the sorcerer and the crocodile a relation such that the sorcerer becomes the crocodile, without, however, being confused with him. From the point of view of the principle of contradiction one or other of two things is necessary: either the sorcerer and the animal make one person, or else they are two distinct things. But prelogical mentality can find a place for both affirmations at once."

In all this "prelogical" seems to mean very little more than "not making sharp distinctions in realms within which we sometimes do make sharp distinctions". It is possible that when the primitive man, seeing his friend's canoe upset by a crocodile and his friend drowned or eaten, says, "This was done by a crocodile; let us therefore punish the sorcerer," he is no more prelogical than are we when we say "This was done by Philip drunk, let us take it out of Philip sober".

Dr. Rivers in his paper on *The Primitive Conception of Death*, had no difficulty in showing that some of Lévy-Bruhl's earlier illustrations of the savage's disregard of the principle of contradiction break down entirely the moment the primitive notions involved are fully understood. The illustrations in *La Mentalité Primitive* do not appear to be one whit more convincing.

There is another point. When Lévy-Bruhl compares primitive with modern he is very apt to pit the common and ordinary member of the earlier group against the rare and unusual member of the later. It is all very well to say that the savage ignores "secondary" or intermediate causes. No doubt he often does this. But so do many of us. The man who is "struck" by lightning can still be regarded as selected by Providence, even though the part played by the lightning is at the same time admitted. Modern psychology is almost as full of references to "psychic energy" as are ancient practical beliefs of references to controlling spirits. It is a curious but indubitable fact that no small amount of recent social and abnormal psychology errs, not in that the primitive or the abnormal are wrongly observed, but in that the modern and the normal are hardly observed at all. In any case to compare the ordinary member of a primitive group with the modern scientific expert at work within his own field is hardly fair to the former.

Further, any attempt to analyse the nature of mental processes which characterise a stage of social development may easily fall into error if it is strictly limited to a study of certain special departments of activity. Take this one point of the ignoring of intermediate links in a chain of causation, for example. Even in those realms with which he specially deals, this is hardly as complete as Lévy-Bruhl would have us believe. And when we turn to the practical inventiveness of primitive man in regard to the search for food, the provision of dwellings, and the development of material arts it appears that the savage is about as capable of learning from experience as the best of us. And not only so, but within these realms he learns from experience in very much the same ways as we do. Largely because he learned his lessons, we have a great deal more leisure, and can thus refine his methods and apply them, when we so please, to spheres which the exigencies of his life held him from investigating in detail. But there is a considerable territory yet to be explored. It is possible that some future ethnologist, interested in the odd notions of the present age, may charge us with mysticism and irrationality, much as Lévy-Bruhl has fastened these characters upon the early man.

In fact, as one reads this book one is irresistibly reminded of the caution uttered by Dr. Rivers in his Fitz Patrick Lectures on Medicine, Magic, and Religion. He was dealing with the very same branches of culture which Lévy-Bruhl has chosen to study in the book under review. "There can," he said, "be no greater hindrance to progress in our attempts to understand the mind of man of lowly culture than the belief so widely held that his actions are determined by motives having that vague and lawless character ascribed by many to the thought of savage man. I believe there is no single department of social life in which it cannot be shown that this view is false." Such a position granted, Lévy-Bruhl's new book may be seen to be a collection of very interesting premisses and of very unsound conclusions.

F. C. BARTLETT.

The New Idealism. By MAY SINCLAIR. London: Macmillan & Co., 1922. Pp. xvi, 333.

Realism, on Miss Sinclair's view, is the metaphysic of mindlessness. If it accepts mind at all, it accepts it as a particular local development of an unminding process. Idealism, on the other hand, accepts the dominance and the centrality of mind.

She regards both theories as hypotheses, but one may explain better than the other. They are also, she believes, contradictory, and there is no serious third possibility. Her argument, consequently, attempts the overcoming of realism, and looks to idealism for the appropriate supplement and improvement.

This idealism, however, she thinks, must be new. The old idealism 'has got to move on or go under,' for these new realists have something to say, and they have said it, too, within the last five years. The greatest of them, indeed, are worthy of devout admiration, and Miss Sinclair acknowledges the fact very handsomely.

What is chiefly to be learnt from them is that Space and Time must be taken seriously. Accordingly, after some preliminary skirmishing (principally concerning memory and 'external' relations) Miss Sinclair proceeds to a very full discussion of Messrs. Broad and Whitehead; and after a brush with the critical realists and certain observations on the antinomies, she concludes the first (and longer) part of her book with a fifty-page essay on Mr. Alexander.

Miss Sinclair has not spared herself in these enquiries. Her scrutiny is always searching and minute. She keeps up a continuous brisk bombardment with the most pertinacious freshness and pith. She is utterly fearless, too, in meeting these formidable antagonists on their own ground—at any rate so long as they write plain English, for she confesses to a certain nervousness lest Mr. Whitehead should slay her with an equation, and not even let her know how dead she is. Something less than an equation, I think, might suffice for her treatment of the compact series (where she finds nextness camouflaged as betweenness); and there are other misses. *Per contra* there are many hits. In particular, I should like to see a reply from Mr. Alexander.

The general plan of Miss Sinclair's critical argument is to let realism refute itself. What she has to prove, however, is that it refutes itself because it leaves mind out, and although she herself seems always to see quite clearly why its mindlessness is responsible for its many disasters, it may be doubted, often, whether she has any reason to expect that her readers will see it too. Even if there are only two alternatives, an undivided sovereignty of mind and an undivided sovereignty of mindlessness, it is at least possible that realists, even eminent ones, should sometimes contradict themselves flatly, and sometimes talk utter nonsense. If so, it need not be necessary to suppose that nonsense becomes sense, or contradictions non-contradictions just because mind comes in. It must be confessed, indeed, that the triumphant entry of mind in the reconstructive part of Miss Sinclair's argument brings something like a shock, despite the lavish hints of her critical preparations. "Consciousness secures to events their range in Space, their hold on Time, their past, their present and their future, in a word, their continuity." "In minded Space-Time, motion becomes once more thinkable." Change and substance become intelligible; the problem of the relation of perspectives to Space-Time loses its "relevance". This is what consciousness does; and when we come to the categories, an "intrinsic, irreducible selfhood beneath and behind all consciousness" does it, so that the idealist has a "fairly easy" career in this region. And so of a host of other problems.

To be sure, Miss Sinclair does not profess to offer more than a tentative justification of her fundamental thesis that 'the being of things is to be willed, and their appearance is to be known'. Hers is an essay towards the reconstruction of idealism, and therefore it is unfair, perhaps, to expect that her hypothesis could be very closely argued over so wide a field. Still, she has at least one positive suggestion to elaborate—her doctrine of the fundamental distinction between primary and secondary consciousness. This, she thinks, settles the realist's problem of the relation of mind to its objects.

Primary consciousness, she tells us, is the whole block immediately present in consciousness. It is alleged to include space and time, motion, and all the other categories, all concepts and all the raw material of judgment and reasoning, as well as the profound contemplation of some beautiful thing or of some enthralling idea. Indeed, it seems to include everything which is raw, or engrossing, or taken in its first innocence; and the razor blade of analytic thought can only get in between it and the secondary act. This secondary consciousness—"the play of the mind round about its object"—is said to include observation, reflexion and meditation, judgment and inference, believing, disbelieving and opining. It is all logic and all scientific knowledge. Thus radium, before it is discovered, exists as a secondary concept, a hypothesis; discovered, it becomes a primary percept; and yet the whole region of discovery, of objects found and not created, is said to belong to secondary consciousness.

I cannot think this is clear. So far as I can see, Miss Sinclair's main contention is that a primary process (say of perception or memory) cannot either affirm or deny that the object perceived or remembered is mental or non-mental, dependent or independent. This is a question for subsequent reflexion if haply it can be solved at all. In this, I think, she is right, but it seems an inadequate basis for the statements I have quoted, and surely it does not support the following sweeping announcement "Once admit that primary and secondary consciousness are and are separable," she tells us, "two distinct though related acts of the undivided self, and you can afford to let both consciousness and the cosmos rip. Holding fast by this distinction you can have all the idealism and all the realism you want."

The volume concludes with some brief reflexions on ultimate consciousness. It defends God's 'dithyrambic and adventurous character, His eternal wildness,' although on an earlier page we were told that one of God's chief functions was to geometrize eternally about pure geometrical figures which the individual consciousness filled with the hardness and softness, the roughness or smoothness, the colour and richness of its own *sensa*. We learn also that even God's immanent consciousness is comparatively unreal, and that only His transcendent consciousness is that which truly is. Finally, as touching His omniscience, it is suggested that while God can know everything, He may not choose to know a great deal. Thus He is saved from hearing wicked old men telling naughty stories in their clubs, and Miss Sinclair deduces a remarkable theological consequence which I shall quote in full. "God," she says, "could know everything, but He only knows what He wills to know. He need not listen to all those conversations. It is at least possible that man's crimes and imbecilities and falsehoods are precisely what God doesn't know. And what He doesn't know, He can't foreknow and so prevent. And if He hasn't foreseen evil, then He is not responsible for it."

JOHN LAIRD.

La Guerra Eterna e il Dramma dell'esistenza. By A. ALIOTTA. Second Edition, enlarged. Naples: Francesco Perrella. Pp. xiv, 296.

La Teoria di Einstein e le mutevoli prospettive del mondo. By A. ALIOTTA. Biblioteca Sandron, No. 75. (Milan and Palermo, Naples, Genoa, Bologna, Turin and Florence), 1922. Pp. 120.

Prof. Antonio Aliotta, who now holds a chair at the University of Naples and edits the international philosophic journal *Logos*, is well known to English readers of philosophy by his book on the idealistic reaction against science, which received critical notice in *MIND*, No. 84 by Prof. A. E. Taylor, and (the English translation) by Prof. C. D. Broad in No. 93. It is to be hoped that his subsequent developments, as represented in these volumes, will receive as much and as favourable notice. For not only do they exhibit a real and important advance in thought, but also a valuable innovation in philosophic exposition. He has prefaced the second edition of his *Guerra Eterna* with a very interesting autobiographical sketch of his spiritual development, in which he frankly confesses that he has changed, and means to change so long as he lives. The value of such confessions will be appreciated by all who have ever tried to reconstruct the man behind a philosophic system, and have laboriously come to suspect that it is the rule rather than the exception for the logical order of the latter to invert the historical order of the former's psychic development. His conclusions are usually a philosopher's real starting-point, and his premisses but an after-thought concealing the real character of the system. Now in Prof. Aliotta's development the movement was perhaps always more apparent than the system: it finds expression in his lively, eloquent and richly-coloured language, and has carried him from a 'dynamical pantheism' of a more or less conventional type towards a theistic affirmation of divine personality, and now to what is substantially a pragmatic humanism. He has, however, abandoned theism, in consequence of the practical object-lesson in the problem of evil afforded by the War. Loss of belief in theism has not, however, entailed abandonment of belief in immortality. His concluding chapter raises, and discusses in a spirited fashion, the burning question of nationalism or internationalism in the world of ideas. Prof. Aliotta takes the nationalist side, though not in an extreme form; but he hardly makes allowance enough for the potency of social tradition in moulding and selecting the minds that are then taken to represent the congenial mentality of the society which exhibits them. This assumption may not be seriously misleading in cases where the national temper or traditions are intellectualistic or contemplative, as in Greece and India, and perhaps (much more doubtfully) in Germany: but it breaks down woefully wherever the dominant trend of national life is towards practical activity. For the academic life, which everywhere attracts intellectuals naturally inclined to contemplation, then becomes a haven of refuge for dissenters from the prevalent type, in which they can organise themselves so effectively as to repel all intruders of the more normal temperament. The practically-minded societies thereupon tend to leave their intellectuals alone, listening, it may be, politely to their doctrines when they have to, but ignoring them in practice, and putting a low social estimation upon their activities. This is what happens in England and America, where it would be quite mistaken to draw inferences from the tone of academic life to that of society at large, and violent contrasts exist between the theories of the one and the practice of the other.

Prof. Aliotta's book on the Theory of Einstein begins with a lucid exposition of its subject (ch. i.), proceeds to a valuable discussion of scientific truth in relation to the principle of Relativity in chap. ii., discusses its

idealistic interpretations in chap. iii., devotes chap. iv. to the 'degrees of truth' (adopting the pragmatic test of acting on a theory to determine its 'truth'), and considers finally individual visions of the world (ch. v.), the relations between scepticism and pluralism (against Rensi) in ch. vi., and the plurality of the subjects of experience (ch. vii.).

F. C. S. SCHILLER.

Language, its Nature, Development and Origin. By OTTO JESPERSEN, Professor in the University of Copenhagen. London: Geo. Allen & Unwin, Ltd., 1921.

In this collection of studies Prof. Jespersen ranges over a wide field. Of the four Books into which the work is divided the first deals with the history of linguistic science—the history of philology would perhaps be a more suitable title; the second consists of a richly-documented account of the child's acquisition of language; the third discusses the causes of change in language; and the fourth the wider question of its general development.

The second of these sections will be of great interest to those psychologists and educationalists who have recognised the importance of the subject. The acquisition of our first language is the most brilliant intellectual feat that most of us perform, and our procedure here to a large extent fixes our general mental habits. Thus the amusing mistakes of children have their analogues later on in the confusions of philosophers. The little girl here instanced (p. 138), who, hearing her mother say, "I will wash you in a moment," answered, "No, you must wash me in the bath," has often enough been heard in philosophical circles protesting against the spatial metaphor 'in the mind'.

Prof. Jespersen rightly points out that a linguist is likely to notice many things in children's speech which would be passed over as uninteresting by even the closest observer among psychologists. It is also true, and this may be said without any reflexion upon Jespersen's valuable labours, that the comparative linguist by himself is likely to miss still more. Greater acquaintance with and a more lively interest in psychological questions among students of language is indispensable if advance is to be secured. For the linguist psychology is too often merely a name for Wundt's volumes.

Somewhat similar considerations are suggested by the other sections of the work. The reader who notices (pp. 64, 324) the limitations implicit in Jespersen's conception of a 'science of language,' or studies the problems put forward (p. 99) by way of correction for the narrowness of outlook of which he complains, and many similar passages, will feel repeatedly that the present separation of psychology and logic from linguistics is as unfortunate for the latter as it is for the former.

"Breadth of vision is not conspicuous in modern linguistics, and to my mind this lack is chiefly due to the fact that linguists have neglected all problems connected with the value of languages" (p. 99). It should be remembered that Jespersen is nearly alone among linguists in his belief that a return to normative considerations is required if the present unsatisfactory state of linguistic studies (very generally admitted to be unsatisfactory, witness Brunot's great work) is to be remedied. Thus the absence even from so liberated an outlook as Jespersen's of any awareness of, for instance, the kind of problems mentioned in Bertrand Russell's introduction to Wittgenstein's *Tractatus Logico-Philosophicus*: the problem as to what actually occurs in our minds when we use language, the problem as to what is the relation subsisting between thoughts, words, or

sentences, and that which they refer to or mean, the problem as to what relation, if any, one fact need have to another in order to be *capable* of being a symbol for that other;—the entire neglect of all such problems is striking evidence of the extent to which philosophy and philology require to be brought into communication.

But both these disciplines are to-day so elaborate that a mastery of one almost necessarily prohibits any active interest in the other and the disadvantages of this book as a philosophy of language do not make it less attractive either for the general reader or for the psychologist concerned rather with the odd chance lights which linguistic habits can throw upon mental processes than with the psychology of language itself.

I. A. RICHARDS.

The Foundations of Aesthetics. By C. K. OGDEN, M.A., I. A. RICHARDS M.A., and JAMES WOOD, M.A. London: Allen & Unwin. Pp. 94.

This book follows the plan of taking various theories of aesthetics in turn and considering them, criticising or appraising, the aim being "not to bring theories into opposition with one another, but by distinguishing them to allow to each its separate sphere of validity. If verbal conflicts are avoided, there will be seen to be many possible theories of Beauty, not one only, the understanding of which may help in the appreciation of Art."

As fourteen views as to beauty are thus discussed within seventy pages the treatment is necessarily very brief. Croce, for example, is disposed of in two and a half pages, though it should be added that those pages contain some acute criticism.

The aim of the book seems excellent. Indeed the present reviewer would go further than the authors and maintain that a thoroughgoing attempt to show even that every theory of beauty which has received any notable support has some truth in it, would be of value. The weaknesses of the various theories of aesthetics lie, it seems to me, largely in what they exclude. Nearly every one is true so far as it goes. They err in offering as a complete theory of beauty what is only the emphasising of one aspect—perhaps a prominent one—of aesthetic experience.

The book under consideration varies very much both in clarity of thought and felicity of expression. Some passages are remarkably acute, especially a few which show a nice satiric vein, and suggest that one at least of the three writers is capable of writing a better book on aesthetics. As it is, this volume is more likely to be of value to the general reader who wishes to study aesthetics, than to the psychologist or philosopher.

One special characteristic of the book consists of frequent literary quotations. Usually, it is stated, these are meant "to provide a concrete illustration of some critical point discussed in the passage immediately preceding, and are therefore not to be regarded as additional commentary. They are intended mainly as a constant reminder of what the discussion is about, and are given as fully as space permits in order that the reader may have this opportunity of escaping from the scientific language of the argument." I take it the humour is intentional here.

There are also fifteen illustrations, mostly excellent reproductions. For these it is claimed that "each adequately illustrates one or more of the theories discussed, and it will be obvious that all of them are works of high rank".

In some cases neither the illustrations nor the quotations seem happily chosen: at least I have found it difficult to see what theory was specially

exemplified by some of the illustrations. And some well-known passages would afford better examples of points under discussion than several of those given.

The book is very well printed and produced.

C. W. VALENTINE.

Fundamental Conceptions of Psychoanalysis. By A. A. BRILL. George Allen & Unwin, Ltd. Pp. v + 344.

The material found in this book is taken from lectures given by Dr. Brill, the chief exponent of psychoanalysis in America, at an elementary course in the department of pedagogics of the New York University. It gives a popular and non-technical account of the Freudian doctrines and as such will prove to be of value to the layman who wishes to gain without much effort some knowledge of the main principles of psychoanalysis. It contains little that is original and indeed one is rather tempted to describe it as an excellent abridged edition of Freud's works, except that it is so amply illustrated and extended by examples from the author's own experience.

Dr. Brill is pessimistic as to the value of psychoanalysis as a therapeutic agent, as it can only be used in special cases, but he maintains that the knowledge gained through it is developing a prophylaxis which will not only diminish nervous and mental diseases but will establish newer methods in our system of education, and it is with this object in view that the book has been written. There is no question but that we are much indebted to psychoanalysis for redirecting attention to the paramount importance of the impressions of early life, upon which so much stress is laid throughout the book, and in connexion with which the chapters dealing with the 'only child,' the harm done by fairy tales, and the selection of vocations, provide much valuable information for both parent and teacher: but the statement "whether the individual will be the so-called normal or abnormal person *depends entirely* on the nature of these early impressions" is rather a shock to anyone who has any knowledge at all of eugenics. Dr. Brill is a wholehearted convert to the Freudian faith and like all converts is full of enthusiasm, shows great ingenuity in his explanations and is quite indifferent to criticism. Consistent dogmatism is the keynote throughout and this was essential perhaps for purposes of exposition in the original lectures, but some note of warning to this effect seems necessary when the material is issued as a book to a credulous public, for we meet with many unqualified and extravagant assertions, as for example, "There probably would be no football games were it not for the fact that the participant expects to see at the event his best girl," and "No one can be in any final sense happy, for what he really wants is something that goes back to infantile life". We are told that criminals dream considerably less than the average normal person and that this is to be expected because the criminal actually realises many more of his wishes; we are also told that the normal person, who thinks he does not dream, is really one who forgets his dreams, but we are not told how in this respect he is to be distinguished from the criminal.

Apart from these criticisms this book, as a simple exposition of the Freudian doctrines, is quite sound and calls for no further comment; but it is disappointing in that no attempt has been made to make a critical survey of the fundamental conceptions themselves or to trace these conceptions to their logical conclusions.

E. PRIDEAUX.

Death and its Mystery, At the Moment of Death, Manifestations and Apparitions of the Dying; Doubles, Phenomena of Occultism. By CAMILLE FLAMMARION, translated by LATROBE CARROLL. London: Fisher Unwin, 1922. Pp. 371.

This is the second volume of a trilogy in which the veteran French astronomer, now eighty years of age, has set himself with laudable courage to grapple single-handed with the mystery of death, by scientific, that is empirical, methods. The first volume was concerned with the phenomena regarded as proofs of the existence of the soul 'before death,' the third is to deal with events 'after death,' and the whole will no doubt console some people and irritate others, according to their bias. As regards contents, the book is a mass of stories of supernatural happenings, strung together with only the most obvious comments and little attempt at difficult theoretic analysis. M. Flammarion, being a well-known man of science, enthusiastic, and not too meticulously critical of the confidences made to him by readers of his former works on kindred subjects, has been an industrious and successful collector; but the quantity of his tales is more impressive than their quality. For though he not infrequently draws on the critically-sifted material published by the English Society for Psychical Research, he usually appears to think that all is fish that comes in to his net, and by no means confines himself to first-hand accounts of recent date. This need not, however, condemn M. Flammarion's method, for a story may be both authentic and important, though it is evidentially imperfect; and to have brought his material up to the highest attainable level of such evidence, by cross-examining the witnesses and verifying their statements wherever possible, would have been more than any amateur could have done: it would have required a permanent organisation like the S.P.R., the like of which does not, as yet, exist in France. Indeed it would appear from M. Flammarion (p. 130) that (in 1899 at any rate) he was not allowed to continue his articles on Psychic Research in the *Annales Politiques et Littéraires* because so many of their readers threatened to withdraw their subscriptions, 'on religious grounds'. Even this experience, however, has not led him to reflect on the extraordinary psychological paradox revealed by the traditional attitude towards these questions. From time immemorial the human race has loved to circulate ghost-stories, and shrunk with well-feigned horror from the 'impiety' of verifying them!

F. C. S. SCHILLER.

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- J. W. Lea, *Britain's Decline: Her Economic Disorder and Its Only Remedy*, Birmingham, Cornish Brothers Ltd., 1922, pp. xiv, 79, 1s.

VII.—PHILOSOPHICAL PERIODICALS.

THE BRITISH JOURNAL OF PSYCHOLOGY. Vol. xii., Part 3, December, 1921. **Godfrey Thomson.** 'The Northumberland Mental Tests.' [Describes an extensive application of tests to children in many elementary schools in Northumberland with a view to discovering children well qualified to enter secondary schools, but who were in schools which sent in no candidates for the County examination for admission to secondary schools. The results suggest that such tests may be of value in comparing average intelligence in different types of schools, in selecting pupils for promotion, especially in remote schools, in checking the efficiency of promotion in schools, and in comparing the native intelligence of pupils in one area with that of those in another. The distribution of intelligence suggested by the tests is such that the highest ability appears to be found close to the cities and far away from the cities, the intermediate areas having fewer cases of high ability, as though they were drained by selection.] **Mary Sturt.** 'A Comparison of Speed with Accuracy in the Learning Process.' [Describes an experiment by the method of equal groups on the relative value of (1) concentrating on speed and (2) concentrating on accuracy, in the learning of typewriting, the subjects being children of an average age of 13½ years. After the two groups had practised for several months, one following the speed method, the other concentrating on accuracy, the methods were reversed, the groups changing methods. Now the (at first) "accuracy group" caught up the "speed group" in speed but retained a superiority in accuracy, though Miss Sturt concludes that between the two methods employed there seems little to choose when considered simply as methods of learning. The choice must depend on other considerations, *e.g.*, on how soon it is desired to use the product. Other conclusions are: (1) If movements such as are employed in typewriting are learnt slowly at first, the length of the learning process is not thereby increased; and the same speed can be obtained finally as when speed is insisted upon from the start. (2) If during learning the attention is directed solely to accuracy, the speed will gradually improve. If attention is directed solely to speed, the accuracy tends to diminish. (3) Without special apparatus it seems unwise to demand speed from the very beginning, as it becomes more difficult for the learner to acquire "correct" movements, assuming these to be ultimately valuable. (4) It seems probable that a high quality of work can be obtained finally, without insisting on a high quality constantly throughout the learning process. This would appear to have a very general bearing on methods of teaching similar forms of skill.] **L. Feasey.** [Describes 'Some Experiments on Aesthetics' with coloured rectangles and designs as material. Two distinct attitudes towards arrangements of geometrical forms were noted, that regarding the designs merely as formal arrangements of figures, and that regarding them as representations of objects or scenes. Subjects adopting these attitudes are said to belong to the "pattern type" and the "picture type" respectively. These two types appear both in the construction of the designs and in the observation of the designs made by others. The

pattern type appears to be more objective and formal, the picture type more subjective and imaginative. No evidence was obtained to support the view that the aesthetic judgment is based on emotion: there was no general correspondence between the aesthetic judgment and the emotional reaction as measured by the psycho-galvanic reflex.] **L. G. Fyldes and C. S. Myers.** 'Left-handedness and the Reversal of Letters.' [Describe experiments on a left-handed boy which led them to conclude that his choice and writing of a reversed letter (Ɔ instead of E) are the outcome of visual and manual influences, and that a child's early visual experience is little concerned with the absolute position of seen objects. "His attention is first drawn to their form, and his powers of recognition are not gravely disturbed, whether that form, once learnt, be represented to him in the "ordinary" or "reversed" positions or even in the "recumbent" or "upside-down position": he apprehends the letter, as it were, in a definite visual "schema," through the inter-relation of its parts within the whole."] Other articles are as follows: **Arthur Ragnar Granit.** 'A Study on the Perception of Form.' **H. Hartridge.** 'A Criticism of Wrightson's Hypothesis of Audition.' **E. J. G. Bradford.** 'Factors in Mental Tests.' **W. Whately Smith.** 'A Note on the Use of the Psycho-galvanic Reflex.'

JOURNAL OF PHILOSOPHY. xix. 10. **J. E. Creighton.** 'The Form of Philosophical Intelligibility.' [A concrete universal.] **A. T. Poffenberger.** 'Measures of Intelligence and Character.' [Discusses the correlation of intelligence tests with success in life and the desirability of a "combined measure of intelligence and character" to prevent "the waste of high grades of intelligence in positions where it is not needed and to put those of low intelligence in places where their capacity would be adequate and their character traits would make them successful".] **W. E. Ritter.** 'The Word Integration, and a Few Remarks on the Paleontology of Words.' [A very lame apology for deriving it from *gradior* in xviii., 17—but the editor does not apologise for accepting the article.] xix., 11. **F. C. S. Schiller.** 'Mr. Russell's Psychology.' [Regrets that it should revert to a "psychological type of which Hume is the greatest exponent and the Kantian Criticism the most imposing monument" and analyse in terms of fictitious 'elements' like 'sensations' and 'images'. It is pointed out that description from the *observer's* standpoint can never account for the *agent*, and that the *activist* alternative in psychology is worth exploring.] **B. Bosanquet.** 'Implication and Linear Inference.' [Objects that his reviewer has not seen that "self-evidence is relative to the relevant whole of experience".] **T. Munro.** 'The Verification of Standards of Value.' [Points out that though pragmatism cannot formulate absolute standards of value it can, and must, explore and appraise the workings of the various standards actually used.] xix. 12. **J. Dewey.** 'Realism without Monism or Dualism' I. [Lovejoy having charged Dewey with confusing, in his account of historical truth, the time referred to and meant with the time of its verification, the thing proved with the means of proof, Dewey declines to admit their complete dissociation, and points out that only such past events can have historic truth as have left consequences which are *now* observable. "So far as the meaning is wholly of and in the past, it cannot be recovered for knowledge" and "the true object of a judgment *about* a past event may be a past-event-having-a-connexion-continuing-into-the-present-and-future". Thus "the nature of the past event is subject-matter required in order to make a reasonable judgment about the present or future. The latter thus constitutes the object or genuine meaning of the judgment." "Our thoughts about the past hang upon present observable

events and are verified by future predicted or anticipated events," and it is unnecessary and useless to postulate "a psychical somewhat that somehow transcends itself and leaps back into the past," and a 'propensity' to do this cannot validate this assumption, except in the eyes of a very 'subjective' pragmatism, to which therefore Lovejoy is committed.]

H. C. Ackerman. 'The Differentiating Principle of Religion.' [Religion can no longer sustain its claim to the totality of reality and must concentrate on the highest and best values: its 'final stronghold' is the moral life.]

A. A. Roback. 'Intelligence and Intellect.' [Attempts to express the difference in their use in terms of a 'greater co-ordination' implied in 'intellect'.] xix., 13.

J. B. Pratt. 'The New Materialism.' [Destructive criticism of H. C. Warren, W. M. Montague, and R. W. Sellars, showing that the 'new' materialism fails to get over the objections fatal to the old.]

J. Dewey. 'Realism without Monism or Dualism, II.' [Continues reply to the criticism of the 'critical' realists. While denying that 'representation' involves a mental state, Dewey admits that present objects can exercise a representative function. He is neither a 'mediatist' nor an 'immediatist' but holds that wherever there is knowledge, *i.e.*, reflexion and inference, there must be *both* mediation by an object which points to, signifies, or represents, another and verification by immediate experience. "The subject-matter of inference is a candidate or claim to knowledge requiring to have its value tested. The test is found in what is finally immediately present." The only 'pragmatic' feature about this theory is that "experiment or action" is needed to connect the thing signifying with that signified and to convert hypothesis into knowledge. Hence Dewey is neither monistic nor dualistic in his realism but pluralistic. Lovejoy errs in supposing that he must admit psychical entities as such. Meanings, relations, functions, values, norms, etc., may be *neutral* to the distinction of physical and psychical. As exercising functions they may be called mental, but "neither the thing meant nor the thing signifying is mental." Finally, Dewey rejects Rogers's suggestion that pragmatism is *not* discussing the same problem of knowledge as critical realism; it discusses knowledge in the only profitable way, *viz.*, by analysing actual cases of knowledge, while "to try to investigate knowledge at large" is vain.] xix., 14.

W. H. Sheldon. 'The Dichotomy of Nature.' [Loose suggestions for 'construing the universe' by means of 'categories' and 'dichotomies.' 'Category' is used as meaning "a habit of nature frequent enough to seem metaphysically important," and 'Dichotomy' any duality or antithesis. On page 370 'conceiving' and 'imagining' are equated.]

A. O. Lovejoy. 'The Length of Human Infancy in Eighteenth-century Thought.' [Points out to Wells (*cf.* xix., 8) that his quaker's anticipation of Fiske was a common-place of eighteenth-century thought, expressed by Locke, Pope and Bolingbroke, and criticised by Rousseau.] xix. 15.

T. de Laguna. 'The Nature of Space, I.' [Sets itself, in simple and lucid language, to build up a metrical geometry, with 'point' and 'being farther apart than' as its two specific indefinables.]

G. A. Tawney. 'A Metaphysician's Petition.' [Vigorously defends pragmatism as methodology against A. O. Lovejoy's metaphysical criticism of B. H. Bode and Dewey in 'Critical Realism,' and urges that to discuss what kind of a metaphysician a pragmatist is is to beg the question.] xix., 16.

T. de Laguna. 'The Nature of Space, II.' [Deals chiefly with the idealisation of physical objects by geometry and its utility and verification, holding that Poincaré erred in distinguishing between the value of geometry and of mechanics in these respects. Finally, the general principle of the uniformity of nature is discussed and said not to "strengthen in the slightest degree the argument for any particular uniformity".]

W. E. Hocking. [Adds

Herder to the anticipators of Fiske (cf. xix., 8, 14). It is to be hoped that the discussion will presently arrive at Anaximander, who is much more relevant as well as more antique.] xix., 17. **T. de Laguna.** 'Point, Line, Surface, as Sets of Solids.' ["A series of definitions of geometrical concepts, based upon the assumed entity 'solid' and the assumed relation 'can connect,' forming an appendix to the articles on the *Nature of Space*, with special reference to A. N. Whitehead's 'method of extensive abstraction,' and claiming the advantage that the 'point' can be conceived as a 'solid' of zero length.] **R. H. Dotterer.** 'Doing without Distribution in Formal Logic.' [By discussing the hypothetical syllogism before immediate inference and the categorical syllogism.] xix., 18. **M. Picard.** 'Value and Worth.' [Replies to critics of his book on *Values, Immediate and Contributory*, and attempts to distinguish 'value' as subjective from 'worth' as objective, interest which is 'affective' from that which is 'wholly cognitive,' and values which are 'contributory' (= good as means) from such as are 'immediate' (= good as end). It is assumed throughout that the distinction between feeling and knowing can be made absolute, and that though they are not separable in existence, "the affective and cognitive elements are always distinct upon introspective analysis"; but the complications of the argument all seem reducible to a refusal to face the fact that 'values' and 'worths,' value-judgments and assertions about worth, are always disputable and not infrequently false, like other judgments.] **H. B. Smith.** 'Mind in the Mechanical Order.' [Points out to A. O. Lovejoy that scientific concepts develop and that the 'mechanical' also does not mean what it did.] **M. W. Calkins.** 'The Ancient Landmarks: A Comment on Spiritualistic Materialism.' [Protests against the playing "fast and loose with the terms 'spiritual' and 'material'" by W. H. Sheldon and J. Loewenberg.] "SCIENTIA." April, 1921. **G. Loria.** 'Les contributions des différents peuples au développement des mathématiques: Deuxième partie: Le caractère international de la pensée mathématique.' **E. W. Berry.** 'Paleontology, its contributions to knowledge.' **Charles Richet.** 'Anaphylaxie et finalité.' **J. Vendryes.** 'La crise Irlandaise.' This number is noteworthy for the number and completeness of its reviews. Review of Reviews. May, 1921. **J. G. Hagen.** 'The problem of the Variable Stars in its present state.' **A. Rey.** 'La contribution que les divers pays ont donné aux progrès de la physique: Première partie: Physique Newtonienne et Physique de Fresnel-maxwell-clausius.' **G. Sergi.** 'Come la Paleontologia rivela l'origine e l'evoluzione animale e vegetale.' **G. Drena.** 'La cour permanente de justice internationale.' Reviews. Review of Reviews. June, 1921. **D. E. Smith.** 'Ten great epochs in the History of Mathematics.' **A. Rey.** Part 2 of previous article: 'Physique énergétique et physique électronique.' **A. P. Suñer.** 'La constitution de l'individualité.' **C. Gini.** 'Problèmes financiers d'après guerre: Première partie: Dettes publiques et charges fiscales.' Reviews. Review of Reviews. July, 1921. **J. W. Gregory.** 'National contributions to Geology.' **A. P. Suñer.** 'La constitution de l'Individualité: Deuxième partie: L'individualité psychique.' **C. Baudouin.** 'Les idées nouvelles sur la suggestion.' **C. Gini.** 'Problèmes financiers d'après guerre: Deuxième partie: Prélèvements sur le capital.' Reviews. Review of Reviews. August, 1921. **B. L. Vanzette.** 'De la contribution des divers pays au développement de la chimie.' **E. P. Lewis.** 'The Relation of Light Emission and Absorption to Atomic Structure.' **C. M. Child.** 'Le problème d'intégration physiologique.' **C. Gini.** 'Problèmes financiers d'après guerre: Troisième partie: D'un nouveau principe de progressivité pour les impôts de succession et de ses développements possibles.' Reviews. Review of Reviews. September, 1921. **G. Armellini.** 'Le comete secolare ed il moto del

sole nello spazio.' **A. Boutaric.** 'L'émission d'électricité par les corps incandescents.' **R. H. A. Plimmer.** 'The Chemical and Biological Differences in Proteins.' **B. Auerbach.** 'La question de l'union de l'autriche allemand à l'Allemagne.' Critical note by **Vernon Lee** 'Psychovitalisme et hypothèse mnémique (à propos d'un volume posthume de Richard Semon).' Reviews. Review of Reviews. October, 1921. **R. W. Lawson.** 'The Part Played by Different Countries in the Development of the Science of Radioactivity.' **Ch. Fabry.** 'Le problème de la luminosité du ciel nocturne.' **E. Lugaro.** 'L'association des idées dans les rêves.' **G. Mondaini.** 'Buts et résultats coloniaux de la guerre mondiale : Première partie : Les résultats politico-territoriaux.' Reviews. Review of Reviews. November, 1921. **H. P. Hudson.** 'Euclidean Constructions.' **J. Perrin.** 'L'origine de la chaleur solaire.' **A. A. Mendes-Corrêa.** 'Le Milieu Géographique et la Race.' **G. Mondaini.** Part 2 of previous article. 'Les résultats économique-juridiques.' Critical note by **F. Enriques.** 'L'œuvre mathématique de Klein.' Reviews. Review of Reviews. December, 1921. **C. V. L. Charlier.** 'La loi des grands nombres.' **C. R. Keyes.** 'Geological Conquest of the Air.' **M. de Broglie.** 'Le Type Chimique et la substance des corps simples.' [The author regards the existence of allotropic forms of elements, such as phosphorus, as a first indication of the possibility of transmutation, for an element can thus have several distinct 'chemical personalities'. We can pass readily to the idea of two substances, essentially different in ultimate structure, possessing a totality of external properties so close as to imply the impossibility of separation by any practical method. The rôle of radioactivity, in its additions to our knowledge of chemical type, has been to supply us with many irrefutable examples of this phenomenon, produced by methods which contain within themselves the proof of the validity of our view of their mutual relationships. While we cannot separate them, very refined experiments can clearly detect, in a mixture, the presence of two or more substances whose ultimate atomic structures are different. Another aspect of the matter is the final destruction of the view that the chemical elements were primitive and immutable types, incapable of transmutation. Now they are shown to be built up from the real primitive types or forms of matter—not more than perhaps two at most, Hydrogen and Helium. In the transmutation of one element to another many intermediate forms may occur, some thoroughly unstable but existing long enough for their detection, others of much greater stability and not separable by chemical and physical means from others with which chemists were already acquainted. The march of chemistry in the direction of simplification of types of matter which are indivisible has reduced them to one or two.] **F. Virgili.** 'Les Dommages économiques mondiaux causés par la guerre.' **G. Renard.** 'La question Sociale : élargissons le socialisme.' Critical note by **M. Carrara.** 'La théorie de l'évolution en neuropathologie.' Reviews. Review of Reviews. January, 1922. **J. L. Heiberg.** 'Les sciences grecques et leur transmission : Première partie : Splendeur et décadence de la science grecque.' **J. H. Jeans.** 'The Origin of Binary Stars.' **M. Caullery.** 'La contribution que les divers pays ont donnée au développement de la biologie.' **V. Pareto.** 'La question sociale.' **E. Guyot.** 'La paix est-elle une paix anglo-saxonne?' **F. Savorgnan.** 'Les effets de la guerre sur la proportion des sexes dans les naissances.' Reviews. Review of Reviews. February, 1922. **J. L. Heiberg.** 'Les sciences grecques et leur transmission : Deuxième partie : L'œuvre de conservation et de transmission des Byzantins et des Arabes.' **W. D. MacMillan.** 'Some Postulates of Cosmology.' **H. Piéron.** 'Du rôle et de la signification du conflit scientifique entre mécanisme et vitalisme.' **B. Russell.** 'Les causes du chaos actuel.' **P. Silva.** 'La Méditerranée

et l'islam dans le passé et dans le présent.' Critical note by A. Meillet, 'L'Unité romane.' Reviews. Review of Reviews. March, 1922. **J. G. Hagen.** 'The Nebular Envelope of our Stellar System.' **M. Stéphanidès.** 'La Naissance de la Chimie.' **E. Rignano.** 'Le fonctionnement de l'intelligence.' **E. Borel.** 'La Science dans une Société socialiste.' **F. E. Whitton.** 'Les causes de la ruine de la Pologne dans le passé.' Reviews. Review of Reviews.

INTERNATIONAL JOURNAL OF ETHICS. xxxii., 3. April, 1922. **Yu-Lan Fung.** 'Why China has no Science.' [Reviews Chinese philosophy—Taoism, everyman should live according to his nature, Moism, utilitarian, Confucianism, self-sufficiency of developed innate nature, and, Neo-Confucianism, diminishing human desires in order to recover the good; shows that Chinese ideal does not include either the certainty or the power which science may give, hence that China does not desire science.] **Norman Boardman.** 'Logic and Ethics.' [Maintains that in conflict of ends logic is required, the how to be considered as well as the ought, and similarly that in logical situations ethical principles are data which may have to be taken into account in finding solution.] **Helen Wodehouse.** 'Real Life.' [Examines various views as to standard by which we judge "this and not that is specially real"—fulness, representativeness, harmoniousness, structure, and concludes that that life is real which is the utmost we can do.] **Rexford J. Tugwell.** 'Guild Socialism and the industrial Future.' [Criticises G. D. H. Cole's Guild Socialism, suggesting that its assumptions, large crowding populations, rather highly urbanised life, and widespread organisation of workshops and factories, may not form the lines of human development.] **Robert J. Hutcheon.** 'Speculation, Legitimate and Illegitimate.' [Analyses the function of speculator—to adjust supply and demand by stimulating consumption when supply is abundant and checking it when supply is likely to be small; holds that it is illegitimate when either professional speculator or greedy 'pigeon' act so as to tend to destroy this equilibrium, and that cure is the moral education of the next generation.] **Daniel Bell Leary.** 'The Modern World Order and the Original Nature of Man.' [Maintains that scientific knowledge of parts of the universe is only an instrument for the more complete functioning of the complicated system of reactions making the whole man; criticises social environment as hindrance to this functioning and suggests experiments, e.g., a huge committee of Social Welfare and Progress, for extracting the human significance from knowledge and all new discoveries.]

REVUE DE MÉTAPHYSIQUE ET DE MORALE. 28^e Année, No. 4, October-December, 1921. **E. Durkheim.** 'Définition du Socialisme.' [Defines socialistic theories as "all those which demand that all, or at least certain, economic functions should be attached to the organs which consciously direct society". This does not mean that the economic interests of a society should be subordinated to "politics," but that the State should become, first and foremost, an economic organisation, the politics of which would be concerned mainly with economic problems and arrangements. To socialism, thus conceived, emphasis on the class-war and on the improvement of the condition of the working-classes is not essential. Both these are "secondary," the latter being a consequence, the former a means to the realisation, of the transformation of the traditional State into a predominantly economic organisation. Communism is, in principle, the opposite of Socialism, and the current identification of them is due to confusion of thought. The Communism of Plato, Thomas More, Campanella is inspired by a profound moral distrust of wealth and the economic life generally. It sees in property and in economic activity nothing but a

field for selfishness—a standing danger to the true citizen-spirit of public service. Hence, whilst Socialism seeks “to moralise industry by making the control of industry the supreme task of the State,” Communism “seeks to moralise the State by excluding industry from among its concerns.”] **H. Delacroix.** ‘La certitude mystique.’ [A chapter from a forthcoming book on *La Croyance religieuse*, which gives a careful analysis of the phenomena of mysticism. It regards mysticism as “a universal phenomenon and by no means a rare anomaly,” and emphasises that “ecstasy” is not the whole of mysticism, but generally is prepared by a long course of meditation and, in the highest type of mystic, like, e.g., St. Francis, goes together with high practical efficiency and power of organisation. The author recognises that “états démoniaques” occur as the opposite of “états théopathiques.”] **F. Pécaut.** ‘Auguste Comte et Durkheim.’ [Discusses the relation of Durkheim to Comte, and points out that they differ fundamentally in their theories of conscience. For Durkheim, the individual’s conscience is relative to, and based upon, the moral standards of his society, and different social standards are “beyond the category of good and evil,” i.e., are not comparable by any further standard as more or less moral. To Comte, such a view would have seemed “materialistic”. His “morale définitive,” with its ideal of Humanity organised on a basis of mutual love, is conceived as a force in human nature anterior to society and ever driving men to refashion actual society nearer to the heart’s desire. Comte, thus, would be opposed to Durkheim’s “déterminisme social.”] **P. Boutroux.** ‘L’histoire des principes de la Dynamique avant Newton.’ [A long and careful historical study of the development of mechanical theories from Aristotle to Newton, with special reference to the work of Roberval, an opponent of Descartes.] **G. Guy-Grand.** ‘Quelques réflexions sur les idées morales après la guerre.’ [A detailed discussion of contemporary tendencies of moral thought in France, based chiefly on the writings of Ruyssen, Parodi, Belot, Brunschvicg, Alain, Bouglé, Lapie, and Payot. Among the topics discussed are the morality of war, and especially of defensive war; the policy of passive resistance or non-resistance (better “non-cooperation”), with special reference to Bertrand Russell’s *Justice in War-time*; the relation of right and might; the conflict in French educational policy between the advocates of “religious morality” and “lay morality”; rationalistic and anti-rationalistic tendencies in sociology; etc. An incidental quotation, on the subject of German reparations, from M. Gaston Jéze, “professeur de science financière,” is worth noting, to the effect that social and international peace is more important than strict justice, and that debts between nations which are not paid promptly are never paid at all.] **Nécrologue: Émile Boutroux.** New books. Table of contents.—29^e Année, No. 1, January-March, 1922. **L. Brunschvicg.** ‘Le temps et la causalité.’ [A chapter from a forthcoming book on *L’Expérience humaine et la causalité physique*, in which the author tries to show by a detailed criticism of theories of time and causality from Descartes and Newton to Kant, Cournot, and Poincaré, that the antinomies inherent in time and causality, taken in the abstract, can be avoided only if time is regarded as “inseparable from the causal relation which bit by bit creates the temporal field,” and if causality is regarded as the *armature* of this same unique and universal totality. In conclusion, miracles are shown to be impossible.] **H. M. Kallen.** ‘La méthode de l’intuition et la méthode pragmatiste.’ [In effect, a summary of the author’s book on *Bergson and James*. It maintains the same thesis as the book, viz., that, notwithstanding James’s approval of Bergson’s criticisms of the “intellect,” Bergson’s own “intuition” is identical with the traditional method of metaphysicians from Plato onwards, and quite different from, and opposed

to, James's own pragmatic method.] **Lequyer.** 'Fragments publiés par L. Dugas.' [MS. fragments chiefly on necessity and liberty.] **J. Nicod.** 'Les tendances philosophiques de M. Bertrand Russell.' [An eloquent and enthusiastic appreciation of Mr. Russell's philosophy in which M. Nicod finds the ideal reconciliation of pure rationalism and radical empiricism, a philosophy which has borrowed from Science, not this or that method, but "its very soul".] **Dr. R. Morgue.** 'Un exposé récent de la psycho-analyse.' [An appreciative review of the French translation of Freud's *Introduction to Psycho-analysis* which has just appeared. The fact that this is the first translation of any of Freud's works into French gives Morgue occasion to criticise the intellectual isolation of France, and the backwardness of French students in following recent developments in psychology abroad, in spite of the harmony of many of these developments with the general tendency of Bergson's and Janet's teaching. The author concludes with some interesting remarks on the demand, occasioned by the increased prevalence of venereal diseases since the war, for sexual education. Distinguishing sharply between "reproduction" and "sexuality," he maintains that the problem is not solved by teaching adolescents the biological facts of reproduction. He agrees with Freud that the character and degree of an individual's sexuality is determined in earliest infancy, and that the decisive sex-education must be given then. (Unfortunately he does not tell us how he conceives the substance and method of that education). There follows a select bibliography on psycho-analysis.] **B. Lavergne.** 'Insuffisances et réformes de l'administration française.' [Maintains that the French Civil Service suffers from two defects, viz., improper influence of politics on administration, and absence of any serious control making for efficiency. Various reforms are suggested and discussed in detail.] **New books and periodicals.**

REVUE DE PHILOSOPHIE. January-February, 1922. **Dr. E. Le Bec** 'Les preuves médicales des guérisons miraculeuses.' [Two lectures given at Paris by the head of the *Bureau des Constatations* at Lourdes, containing the substance of his book, *Les preuves médicales du miracle*. Having enumerated the conditions required for a proof of the supernatural character of a cure, and having given some examples of cures, the author discusses what he calls the *physiology of the supernatural* under the headings: appearance of tissue, disappearance of tissue, evolution of tissue without *time-factor*; and answers objections against the explanation by miracles—in particular, the objection of unknown causes.] **Paul Vignon.** 'Pour hâter la rentrée en scène de l'idée en biologie transformiste.' (2^e article.) [In this article the author takes the case of adaptation of form in the lower kinds of life, and concludes that a directing Intelligence is necessary to give a sufficient basis for the theory of transformism.] **Pedro Descóqs.** 'La théorie de la Matière et de la Forme et ses fondements.' (3^e article.) [In this instalment the author begins to discuss the metaphysical arguments advanced in support of the theory. These are reducible to three: the first, which is based on the concepts of Act and Potency, deduces the theory immediately from the principle that the perfection of an act can only be limited by a corresponding potency; the second deduces it indirectly from the same principle through the theory of individuation; the third argument is drawn immediately from the nature of extended being and its different properties. In the present article the first of these arguments is put to the tests of strict logic and the general principles of the Thomist system, and is found wanting as a basis for the theory of matter and form.] **Val. Reyre.** 'Art et Scolastique, par J. Maritain.' [The book under review in this article propounds the elements of the philosophy of Art according to Thomistic principles. Although the idea of *Beaux-Arts* did not exist in the time

of St. Thomas, yet a philosophy of Art is to be found, on the factitive side, in the Scholastic treatises of Logic, and, on the æsthetic side, in their discussions of the Beautiful.] March-April, 1922. **E. Peillaube.** 'Dispersion de la vie intérieure et médication psychologique.' (1^{er} article.) [The first of a series of articles on abnormal and pathological states of consciousness. A brief description is here given of Sense-illusion. Paramnesia, Hallucination, Day-dreams, Dreams, Somnambulism and Asthenia.] **R. Jolivet.** 'Le doute méthodique de Descartes.' [Descartes' methodic doubt, though a *real* doubt, was not positive but *negative*, i.e., a suspension of judgment. In the philosopher's intention it was to extend only to sense-knowledge and the results of discursive reasoning, not to the truth of intellectual intuition or to the first principles of reasoning. Hence it did not render a return to certainty logically impossible.] **Paul Vignon.** 'Pour hâter la rentrée en scène de l'Idée en biologie transformiste.' (3^e et dernier article.) [The author advances the phenomena of mimicry among insects and other cases of adaptation in proof of the existence of an "instinct strictly innate," and argues again to the necessity of a guiding Intelligence for the explanation of the transformation of species.] **Pedro Descosqs.** 'La théorie de la Matière et de la Forme et ses fondements.' (4^e article.) [The second metaphysical argument—that from the theory of *Individuation*—is here examined. Though this theory is most probably true, yet—because individuation by mere existence is a hypothesis not yet positively excluded, and because even St. Thomas himself regarded the multiplication of spiritual separated forms (*Angels*) in their species as not physically impossible to the Divine Omnipotence—the Thomist theory of Individuation cannot be considered sufficiently certain to form a basis for the theory of matter and form. There remains, then, the third metaphysical argument, which will be discussed in the next article.]

LOGOS. Anno v., Fasc. 1, January-March, 1922. **G. Della Valle.** *Il tempo e la scala qualitativa dei Valori.* [Value is always orientated towards the future. Present and past are only indirectly evaluated. The magnitude of a value depends on the probability that it will be actually realised and on the "temporal distance" of this realisation. A scale of values is always conceivable and has to be applied at every moment of life. Value always implies a choice, but the choice itself is regulated by, say, complex laws, which do not admit of complete determination. It would only be to an all-embracing consciousness that the scale of values would appear as exactly determined and intuitively evident. In practice, an absolute fixed and universal scale of value, descending to minute particulars, would not assist progress, as it would hinder all creation of fresh values.] **A. Pastore.** *Nuovi orizzonti della filosofia teoretica in relazione alla teoria della relatività.* [By "relativity" one may mean that the object of knowledge exists and is known only by relation to the subject, or that the subject exists and is known by relation to the object, or that objects exist and are known only in relation to other objects. The last is what is meant in Einstein's theory, the importance of which lies in its use of Gaussian co-ordinates in four dimensions. From the point of view of philosophy, none of the three enumerated versions of "relativity" deprives knowledge of its value. The relative is not relative to a supposed "absolute" but to other relatives.] **W. Riley.** *American Realism and its Critics.* ii. [The conclusion of the article begun in the previous issue. As far as I follow the writer's argument,—it is written too much in metaphorical language borrowed from the vocabulary of Trent magnates to be wholly perspicuous,—he seems to me to be right in urging that American

neo-realism amounts to a mere reassertion of an impossible "neutral monism".] **A. Aliotta.** *La dialettica in Hegel e nei nuovi hegeliani.* [The English neo-Hegelians think of the Universal Spirit as containing the whole system of all determinations of reality and so tend to deny all reality to change; the Italians, thinking of their transcendental subject as the life underlying history, tend to deny the reality of any ready-made system of determinations. For the former, the dialectical method should reconstruct a system which is already independently complete, though, in fact, it always fails in the attempt, and has to recognise a "superlogical" apprehension of the Absolute. The Italians attach a positive value to the dialectical movement by reducing it to the single triad of immediate subjectivity, objectivity, concrete activity of thought, and seeing in this triad the movement of self-conscious thinking. But the triad is still only got by arbitrary manipulation of concepts derived from experience, as, e.g., when Gentile arbitrarily makes art and religion "opposites" in order to represent philosophy as their "synthesis". Croce shows more respect for empirical differences, but he has to define the various "functions" of "spirit" arbitrarily to make them fit into the dialectic.] *Reviews, etc.*

RIVISTA DI FILOSOFIA NEO-SCOLASTICA. Anno xiv., Fasc. 1. January-February, 1922. [Editorial explanation that, positivism being now defunct, the Philosophical Faculty of the University of the Sacred Heart, of which the Review is now the organ, will devote itself, in the interests of the Christian Faith, more especially to a vigorous campaign against "idealism". The articles of the present issue are all by Professors of the Faculty and the Faculty as a whole takes the responsibility for their contents. May a friendly, though not invariably sympathetic, reader express the hope that the Review, in its new shape, will fully maintain the very high level of its past?] **M. Cordovani.** *Idealismo e Rivelazione.* [A dignified protest against the patronising attitude of "idealists" like Gentile towards Christianity. The author appositely observes that much of the current "idealism," in spite of its boast of having destroyed "naturalism," is itself simply disguised "naturalism," a criticism which applies to others besides Gentile.] **F. Olgiati.** *Come si pone oggi il problema della metafisica?* [The author's inaugural lecture as Professor of Metaphysics. A vigorous polemic with the cry "Back to Aristotle" as its watchword. May I suggest that we may have perhaps to go a step further back,—to Pythagoras, in fact,—before we have wholly recovered the true point of view?] **A. Masnovo.** *Gli albori del neotomismo in Italia.* [Continued from a former number.] *Notes and Discussions.* **B. Rutrenicz.** *Il problema e la nozione della divinità scanto S. Alexander.* [Alexander's doctrine is briefly presented with great lucidity; the writer reasonably urges that there is nothing in A.'s conception of Space-Time to explain either the existence of "teleological" adaptations or the steady tendency, assumed by A., to the "emergence" of ever higher qualities.] *Reviews.* Short notices of books, etc. Anno xiv., Fasc. 2. March-April, 1922. **M. Cordovani.** 'Il Concetto dello Stato secondo l'Etica Cristiana.' [A powerful defence of the Christian and traditional English doctrines of the rights of the individual and the moral responsibilities of rulers against the deification of the non-moral "State" by Croce and other neo-Hegelians. I could wish the writer had not weakened his own case by importing into it doubtful private opinions of his own. He is entitled, e.g., to sympathise with Sinn Fein, if he pleases, but when he declares it manifest to every honest man that "Ireland" has an indefeasible right to independence of Great Britain, he is saying something which, on his own theories, he has no right to say, since he himself accepts the doctrine that even the most

iniquitously established authority, if used for right ends, becomes in time the "power ordained of God". If Fr. Cordovani felt bound to make any pronouncements about Sinn Fein at all, he would have done as well to add that a "right to independence" does not carry with it a right to achieve independence by rape and arson and murder. And, in view of his ideal of a League of Nations presided over by the Pope and having its seat at Rome, one may perhaps doubt whether the "leviathan" really changes its nature when you give it a mitre instead of a crown. Some of us think that a Rome fit to be entrusted with the position would have to be a Rome purged of Ultramontanism and deprived of the last vestige of the power of appeal to the civil sword.] **R. Rung.** 'Studio sulla *Quaestio Disputata* de Magistro di S. Tommaso d'Aquino.' [A great part of this discussion of the Paedagogics of St. Thomas is taken up by a preliminary exposition of Aristotle's psychology. The writer makes far too strong a distinction between Plato and Aristotle. This was inevitable in the thirteenth century when Plato was chiefly known from the work of Chalcidius on the *Timaeus* and from references in Aristotle himself, who apparently knew the *Phaedo* and *Timaeus* better than any other dialogues. The result was that St. Thomas and his contemporaries got their notions of Platonism mainly from the "mythical" side in Plato's writings. We, who have the whole of Plato before us, can and ought to judge rather differently. E.g., Aristotle's doctrine of the part played by memory in learning seems strangely unlike Plato's if we go only to the *Phaedo* for Plato's account of memory, but it is not very different from the doctrine of the *Philebus*, by which it seems to be actually inspired. You cannot say of the discussion of memory in the *Philebus* that it is based on "speculative contemplation" in contradistinction from the "empirical" methods of the *de Anima*. The main purpose of the long essay is to contrast the Platonism of St. Augustine's *de Magistro* with the Aristotelianism of St. Thomas's work. Augustine, starting with the identification of knowing with "remembering," makes Christ our *magister*, or true teacher, even in natural science; Thomas, as an Aristotelian, is able to restrict the magisterium of Christ to the "supernatural". Augustine, regarding God as directly the "light" of the understanding, really makes all science supernatural; Thomas's interpretation of the *intellectus agens* makes it possible to distinguish illumination by a supernatural grace from the "natural light".] *Notes and Discussions.* [Comments on the inconsistency of the speculative scepticism of Rensi with his appeal to brute force as authoritative in the moral and social sphere. Short notes on the recent manuals of logic by Ziehen, H. B. Smith, Goblott.] Book notices, etc.

VIII.—NOTES.

TO THE EDITOR OF "MIND".

REALISM AND THE "PHYSICAL WORLD".

IS REALISM ABSORBED BY IDEALISM?

SIR,

Realism is defined by Prof. Perry as the view that "things may be, and are, directly experienced without owing either their being or their nature to that circumstance". And Prof. Stout (MIND, Oct., 1922) referring to the system of "things and events which exist, endure, change and interact independently of the conditions which make them perceptible to us through sense-experience," calls this realistic system the physical world. The problem which concerns him is *how* we know this world in perception. Well and good. That problem of sense-perception is of great interest to philosophers. But, postponing an attempt to solve it, let us first put a question to which many realists have failed to return a satisfactory answer. What is to be the complete meaning of the expression "physical world"? For the proclamations of Profs. Perry and Stout contain nothing obviously incompatible with idealism. We idealists no longer concern ourselves with Kant's "narrow subjective idealism," as Hegel termed it. The moon, we believe, endures in time-space and has a nature of its own, whether it is "experienced"—or shall I say conspired?—in finite centres or not. But, passing beyond this preludial belief, we try to get to fundamentals. What is the standing of the moon, conceived as enduring independently of the finite sentients, or centres of conspiring, to which and in which it appears?

Hegel's view is that the moon is not merely an appearance for us and other finite sentients, but is "established" on the Divine Idea; *i.e.*, on Deity or Cosmic Experience regarded as rational. If we reject his rational Idea, we can still say that the moon is "established," is a psychical event-complex, within Divine Imagining. And with this we are within hail of a fuller idealism; of a *realistic idealism* for which, *e.g.*, secondary qualities, spatial and timal relations and so forth obtain quite independently of their appearance to finite sentients. Realism is caught up in a synthesis implying a spiritual universe; forms of idealism, for which appearances are "unreal" or which house natural objects wholly in finite "minds," being set aside.

"The physical world," on this showing, whether experienced by us or not, is so much content of a spiritual universe.

But suppose that the realist misses this solution. Then he may assign a very different meaning to "physical world". He may regard the moon as an aggregate of "material" existents connected somehow by "forces" or "energies". And this is to sink back towards the metaphysics of a Buchner. "Matter," however, whether used in our practical dealings with sensible things or in our creation of imperceptibles like the material

ether, is just a concept; that of the extended that resists, a highly selective fiction. "Forces" and blind "energies" are as clearly devices of thinking man. Hence of such stuff no actual physical world can consist. Nature is not merely "material"; only aspects of it are spatial and, on occasion, resist. In sooth Nature is more adequately present to the reflecting poet than to him who meditates on substitutive mathematical schemes and bare "primary qualities".¹ On the other hand, the realist may treat "matter," etc., as logical constructs only, disdain simplification, and project all sorts of 'existents' and 'subsistents' wherewith the real universe may wax fat. But, in so far as he rejects a basic idealism, the 'existents' and 'subsistents' bombine in *vacuo* inexplicably and reality dissolves into an atheistic multiverse.

Let us suppose, however, that "the physical world" is a stratum of things and events, aglow with innumerable sentient of all grades, within Divine Imagining. The demand of Prof. Stout is fully met. And in this case the fundamental solution of the problem of external perception is near to seek. The things of the "physical world" are parts of a psychical system which interpenetrate, so that each thing is present in much of the rest of the system in which it exists. An electron, observes Dr. Whitehead, pervades the space-time of the system wherein we place it; and long ago Faraday urged that "each atom extends, so to say, throughout the solar system, yet always retaining its own centre of force". Electrons and atoms are symbols for psychical complexes, and the phrase "centre of force" symbolises one of psychical action. And it is the "relations of influence" of these complexes which are the interpenetration mentioned above. The moon, a more or less enduring complex of complexes within Divine Imagining, influences or 'flows into' very much else. And in the case of the cortex it is present in a special form, conditioned by the quarter penetrated. Among the conditioning powers is the soul. "What are the crude deliverances of sensible experience, apart from that world of *imaginative reconstruction* which for each of us has the best claim to be called the real world?"² The "crude deliverances," again, the *sensa*, are veritably aspects of Nature, but even these gifts are not passively received. Each presentation-field, in short, is a work of art; and it is in the genesis of the mere colour or sound that we shall detect one day some of the most subtle creations of life. Of this elsewhere.

To what extent does the moon of my perceptions reveal the moon as it exists in Cosmic Experience, i.e., in Divine Imagining? That is now the outstanding issue. At this point human thought falters. For (1) Divine Imagining contains the moon in all its "relations of influence" which pervade the world-system and (2) the moon, even as localised by astronomy and commonsense, conceals immeasurably more than it reveals. The vastly complex core of its being is for vision at least a trifling appearance indeed. This core, then, is present to us far less than it is absent from us. Nevertheless, in so far as it is perceived, and however distordedly it is perceived, there is appearance which is prolonging and continuing it into our souls: so that in being aware of this appearance we are also aware vaguely of its source. But the thought of the complexity of the *complete thing* dazzles us. One may suggest only that the soul of the translated,

¹ "The whole of Mathematics consists in the organisation of a series of aids to the imagination in the process of reasoning; and for this purpose device is piled upon device." Dr. Whitehead (*Univ. Algebra*, p. 12). The maker of substitutive schemes is apt, I take it, to lose sight of very much of original or primary reality in the schemes; sometimes even ignores concrete experience in chasing its shadow!

² Dr. Whitehead, *Organisation of Thought*, p. 212. *Italics mine*.

but unrepentant, pluralist, confronting this complexity, would lose hope. In this mingling of penetrated and penetrating, the 'separate ultimates' of pluralism, so convenient for practice, have vanished, and unity, concretely embodied, fills beyond all doubting the view.

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THE BISHOP OF MANCHESTER ON "SYMBOLISM AS A METAPHYSICAL PRINCIPLE".

IN his article in the last number of *MIND*, the Bishop of Manchester claims that Will gives an explanation of the 'very existence of the Universe' as 'no other hypothesis available affords us any hope of doing'. But has the Bishop at all made clear how he takes Will to be explanatory of its own existence? No doubt he speaks of Will as 'self-explanatory' but by immediately going on to show how will or purpose is commonly regarded as a satisfactory explanation of things other than itself, he seems to cast a doubt on his real meaning as if it were no more than an explanation of the rest of the Universe by reference to the Divine Will, which is only an explanation of part by part not, in principle, different from others.

A somewhat similar obscurity appears to attach to the statement, "value and value alone is substance or has substantial reality". At first sight this seems sufficiently definite, but the Bishop goes on to speak of the Good and the good thing, and though he adds that they are not properly distinguishable, yet even to speak of one and then the other would seem to make them not strictly identical, and when the Bishop goes on to distinguish grades of reality according to their self-subsistence, reality as distinct from value seems to reappear in the form of reality in so far as it is not self-subsistent, since to be this it must still be something, and it becomes more difficult than ever to see what precisely is gained by the attempt to treat value as a substantive.

E. W. EDWARDS.

A CORRECTION.

IN a letter to the Editor of *MIND*, Mr. G. T. Bennett of Emmanuel College, Cambridge, points out a stupid slip which I made on page 499 of *MIND*, N.S., No. 124. In illustrating Mr. Johnson's analysis of the subsumptive syllogism in my review of his *Logic*, Part II, I took as a major premise the proposition "Everything with sides and angles is equiangular, if equilateral". This is, of course, ridiculously false, as Mr. Bennett points out. A figure made of four equal jointed rods could be pushed into many different shapes. I want to make it quite clear that this is a slip of my own, and that nothing of the kind occurs in Mr. Johnson's book. Of course, for purposes of illustration, it is a matter of indifference whether we choose false propositions or true ones, so that no injustice has been done to Mr. Johnson's theory. But I am not going to pretend that I did not think this proposition to be true at the moment when I wrote it down. I am sorry to have been so careless, and I should be still more sorry if anyone should have ascribed the carelessness to Mr. Johnson himself and not to his reviewer. I must thank Mr. Bennett for pointing out the mistake.

C. D. BROAD.

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